Instructor’s Resource Manual and Test Bank

for

Berthnal, Bankson, Flipsen

Articulation for Phonological Disorders
Speech Sound Disorders in Children

Seventh Edition

prepared by

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Introduction

This instructor’s manual is designed to assist university professors/instructors who teach graduate or undergraduate courses in speech sound disorders (articulation and phonological disorders). It corresponds chapter by chapter with the Bernthal, Bankson, and Flipsen 7th Edition text. Each chapter is summarized in the form of “Key Points” which will help instructors focus the content of their lectures. Next, each chapter has “Discussion Topics and Instructional Ideas” which give instructors ideas discussion, group work, or take-home assignments. Finally, at the end of this manual, instructors will find possible exam questions for each chapter as well as answer keys. There is a significant amount of reference made to the actual text itself (e.g., “see Table 2.5 on Page 45 for an example), so it is strongly recommended that instructors will obviously need to reference the textbook as one reviews concepts. It is the intention of this manual to aid course preparation and to provide a concise summary of this textbook.
Key Concepts from Chapter 2

1. The production of speech sounds is a very complex act and is made up of a motor and a linguistic component (Figure 2.1 shows more detail). Phonemes are speech sounds that are combined to create words and meaningful messages. (Page 7).

2. Phonemes are made up of allophones, which are variations in the production of phonemes that do not change the meaning of the word. Allophones are influenced by the surrounding sounds and the position of the phoneme in the word (i.e., the normally unreleased /p/ at the end of “pop” vs. the released /p/ at the beginning). (Page 7).

3. Phonemes combine to form morphemes and words. Many words are made up of more than one morpheme (e.g., the word “words” has two: “word” and plural “s”).

4. The most important articulators are: tongue, lips, jaw, and velopharynx. (see Page 12 for detailed definitions of each articulator).

5. The respiratory system works in conjunction with the larynx to provide the necessary airflow to create vibration of the vocal folds. The vocal tract runs from the larynx to the mouth and nose and is lengthened, shortened, and constricted to produce speech sounds.

6. Vowels are voiced, nonnasal speech sounds that are created by the varying positions of the tongue and lips. They are categorized based on the position of the tongue (front vs. back; high vs. low) and lips (rounded vs. unrounded) and the relative amount of muscular effort needed to produce them (tense vs. lax). (Page 16-17 – lists of vowels and their respective categorization is on Page 17).

7. Diphthongs are related to and produced similarly to vowels. They are dynamic sounds and they are typically produced as a combination of two vowels (on-glide and off-glide, shown in Figure 2.9 on page 18). The diphthongs /æʊ/ and /əʊ/ are exceptions because they exist in monophthongal forms as well. (Page 18).

8. Distinctive features are a list of 13 features that can be combined to describe any phoneme in any language in the world. Vowels can be described using distinctive features, though distinctive features are typically used primarily for consonants. Table 2.1 on Page 20 displays the various ways in which distinctive features can be used to describe vowels.

9. Consonants can be described using a traditional phonetic description (Page 22) or by using distinctive features (Page 35). In using traditional phonetic description, we think of consonants in terms of place, voice, and manner. Place refers to where in the mouth the articulators are in order to produce the consonant. Voice refers to whether or not the vocal folds are vibrating during the production of the consonant. Manner refers to how the consonant is produced considering the degree of constriction in the vocal tract and any possible movement during production. (Page 22-25; Table 2.2 and 2.3 provide a quick reference for place, voice, and manner).

10. Types of manners: 1) stops – complete closure of the vocal tract at a point in production; 2) fricatives – narrow constriction of the vocal tract; 3) affricates – combination of stop and fricative; 4) nasals – complete oral closure, but the airflow is directed through velopharynx and out of the nose instead of the mouth; 5) lateral – closure at the midline of the oral cavity, with air flowing around the sides of the tongue; 6) rhotic – the /r/ phoneme can be produced in several ways, most commonly a retroflexed or bunched production; thus “rhotic” is used as an umbrella term to refer to both; 7) glides – always followed by vowels and are produced with a gradually changing articulatory shape (Page 24-25).

11. Types of places: 1) bilabial – both lips as in /b/; 2) labiodental – lips and teeth as in /f/; 3) interdental sounds – tip of tongue and teeth as in /θ/; 4) alveolar – also known as “lingua-alveolar” – tongue tip to alveolar ridge behind top teeth as in /n/; 5) palatal – blade of the tongue and the hard palate as in /s/; 6) velar – tongue dorsum and roof of mouth near velum as in /k/; 7) glottal – both vocal folds as in /h/ (Pages 25-33).
12. Distinctive features have been used to describe consonants and vowels. It is a binary system that allows for classification of phonemes based on a list of 15 features. Sounds receive a “+” if they exhibit that feature and a “−” if they do not. As an example /b/ be a + for voicing whereas /p/ would be a −. Table 2.4 on page 35 shows the distinctive feature classifications for a few consonants. It is important to point out that distinctive features are simply a classification system and do not address the reason for the production and thus have limited application to speech sound disorders (Page 34-37).

13. Phonemes and phonetic information exists at the segmental level. Information that is provided beyond the individual sound is termed suprasegmental. The most common suprasegmentals are: stress, intonation, loudness, pitch level, juncture, speaking rate, and vowel reduction. Though all of these are important issues for clinical purposes, stress can be shown phonetically in stressed vs. unstressed vowels (e.g., the unstressed /ɪ/ versus the stressed /ɪə/). (Pages 37-39).

14. Typically developing individuals are capable of controlling their intelligibility through slow and precise articulation (i.e., by using clear speech). All speakers use stress, intonation, and other suprasegments to highlight spoken information differently. For instance, when providing new information to a conversation, when contrasting information, by lengthening the final syllable of a phrase, by applying pitch declination, and in applying stress differently in certain lexical items. (Page 40-42).

15. Coarticulation highlights the interaction of phonemes when combined in different words. One type of coarticulation is anticipatory – the articulators prepare for a sound that is coming later in a word. Another kind is retentive – the articulators are holding on to a position used for a phoneme earlier in the word. Allophonic variation greatly affects coarticulation, as allophones are often produced as a result of the surrounding phonemic context (Page 43-47; see Table 2.5 for allophonic variation in the production of phonemes and words).

16. Coarticulation can have implications for clinical treatment. Certain phonemes (or allophones) are more easily elicited from certain contexts. SLPs should be aware of this implication for target selection and instruction (Page 45).

17. Egressive airflow is necessary for speech sound production. Figure 2.27 illustrates the aerodynamics of airflow from the laryngeal region through either the oral or nasal cavity. Although most clinicians will not have access to equipment used to measure airflow, the importance of understanding this concept cannot be undersold. Pressure build up is necessary for most phonemes. Inadequate intraoral air pressure is usually indicative of a faulty velopharyngeal mechanism, the vocal folds, the oral cavity, or the respiratory system (Pages 47-49).

18. Three acoustic parameters are of the utmost importance to speech production. Frequency – the rate of vocal fold vibration; amplitude – strength of a sound; and duration – length of a sound. These acoustic parameters vary across sound classes (e.g., strident fricatives are more intense, but weaker than vowels; stops are weak and of brief duration) and across gender and age in individuals (Pages 50-51).

19. Sensory information is supplied during speech production in the forms of kinesthetic (movement sense), tactile (touch and pressure), proprioceptive (position sense), and auditory (sound feedback). Many impairments can affect one or more of these areas of sensory feedback. (Pages 51-52).

20. Speech is organized in multiple different ways (Table 2.8 on Page 53). It is important for students to understand that these levels of organization do not exist in a vacuum but coexist in symbiotic ways. For example, the segmental features of a sound may change based on the articulatory sequence or the phonemic composition (Pages 53-55).

21. There are many differences in the speech of adults and the speech of children. The amount of intraoral air pressure is greater in children than in adults. Children’s speech is usually slower than that of adults and is more variable in accuracy. Patterns of coarticulation are also different. It is important for clinicians to use normative data in the assessment of childr nó’s speech sound production and, consider the differences that happen during development (Page 55-57).
Discussion Topics and Instructional Ideas from Chapter 2

1. The concept of allophones can be very confusing for beginning students. One way to teach the difference between phonemes and allophones is by introducing “families” of sounds. On the board in your classroom (chalk board, dry erase board, Smart board, etc), begin talking about one particular phoneme of your choice (e.g., /k/) and then ask the students to help think of the different contexts in which /k/ can be produced (e.g., initial, medial, or final word position; before a front vowel, before a back vowel; in a cluster, in a singleton; etc). Have students identify as many of the allophones of /k/ (e.g., [kʰ]) as they can.

2. Develop a list of words with 2 morphemes (e.g., “jumped, walked, bounced, laughed, dogs, houses, books, running, crying, saying, etc.) and have students identify how many morphemes are in each word and what they are. Depending on the level of course being taught, speech anatomy may be new information or students may need a review. In either situation, it is important to show visuals. Figures 2.2 and 2.3 can be helpful in highlighting the primary articulators and organs of speech. Virtual anatomy “tours” are available via various websites. Several interactive DVDs may also be available – these may be useful in reviewing and learning the importance of the primary articulators.

3. As with anatomy, information on basic phonetics (Pages 13-37) and suprasegmentals (Pages 42) may or may not be new to students. In order to highlight the various tongue and lip positions used during vowel production, have students practice saying the vowels in progressive order from front to back or high to low. For example, on page 16, Figure 2.8 uses the following words, starting with front high and ending with back low: beat, bit, bate, bet, bat, boot, book, boat, bought, bomb (and the central and rhotic vowels: Bert, butter, but). Have students develop their own list to assess whether or not they are able to discriminate the different tongue positions. This similar activity can be conducted for diphthong placement, to highlight the onglide and offglide.

4. As suggested on Page 19, play a game of 20 questions using distinctive features. Have students guess which sound (vowel or consonant) is being described.

5. Accurate phonetic transcription for the stressed vs. unstressed segments (e.g., /5/ versus /6/) can be difficult for some students. Ask the students to identify on which syllable the stress falls in multisyllabic words. In monosyllabic words, stress is assumed, thus any transcription of a monosyllabic word should include the stressed versions of the IPA symbols. The best way to highlight the effects of coarticulation for students is to have them focus on their own articulators during speech production. If students lightly touch a finger to their lips while producing sample words such as “sneeze” vs. “snooze”, they will feel the lips rounding in preparation for the /u/ vowel in “snooze”, but not in “sneeze”. Other word pairs such as “can” and “cat” will highlight the difference in anticipatory nasality for the /q/ phoneme. A word like “emphasis” also shows coarticulation – the /m/ phoneme is often produced as a labiodental in preparation for the /f/ phoneme. Other examples are found on Page 43.

Full file at https://testbankgo.info/p/
Exam questions from Chapter 2:

Multiple Choice:
1. The smallest units of language that have meaning are:
   a. Words 
   b. Phonemes 
   c. Morphemes 
   d. Graphemes

2. The primary articulators are the tongue, lips, jaw and:
   a. Velopharynx 
   b. Larynx 
   c. Teeth 
   d. Cheeks

3. The appropriate way to describe the vowel /i/ as in “he” is as follows:
   a. Low-back, tense, rounded 
   b. Low-back, lax, rounded 
   c. High-front, tense, unrounded 
   d. High-front, lax, unrounded

4. Diphthongs are a combination of:
   a. Two vowels 
   b. A vowel and a consonant 
   c. Two consonants 
   d. Three vowels

5. A bilabial place of articulation suggests that which articulators are involved:
   a. Lips and teeth 
   b. Velum and tongue 
   c. Tongue and lips
d. Both lips

6. Coarticulation that occurs before the actual sound is produced is called:
   a. Preparatory
   b. Anticipatory
   c. Regulatory
   d. Retentive

7. Velopharyngeal incompetency often presents with the following primary characteristic:
   a. Reduced articulation accuracy
   b. Increased rate of articulation
   c. Increased intraoral air pressure
   d. Reduced intraoral air pressure

8. What kind of airflow is necessary for speech production?
   a. Regressive
   b. Egressive
   c. Impassive
   d. Remissive

9. The phoneme /s/ has what type of placement?
   a. Alveolar
   b. Bilabial
   c. Lingua-dental
   d. Velar

10. The phoneme /g/ is from what sound class/manner?
    a. Fricative
    b. Stop
    c. Affricate
True/False:

1. Allophones are variations of how phonemes are produced.
2. Vowels are voiced nonnasal speech sounds.
3. Lingua-alveolar sounds are produced by the constriction of the tongue blade at the hard palate.
4. Distinctive features are the only way to classify consonants and vowels.
5. Suprasegmentals greatly affect the meaning of a message.
6. Coarticulation has no contribution in a clinical context.
7. People often unknowingly change their rate of speech depending on the context and audience.
8. The phoneme /f/ is a fricative.
9. The phoneme /k/ has a bilabial placement.
10. The phoneme /h/ is voiceless.

Short Answer:

1. Name four primary articulators.
2. Describe a situation in which vowels would not be nasal and a situation in which a vowel would not be voiced.
3. What is the difference between anticipatory coarticulation and retentive coarticulation? Provide an example of each.
4. What are two allophones of the phoneme /p/? Give specific examples.
5. A child, Sam, enters your clinic room. The first sentence he says to you is “Tam like tunny dayd”, (which his mother translates for you as “Sam likes sunny days”). Based on this short speech sample, which sound class does Sam have trouble with?

Essay:

1. Discuss the differences between consonants and vowels.
2. Compare and contrast the various classification systems that can be used to describe phonemes.
3. Define and describe the three primary acoustic features of speech.
4. What is the difference between fricatives and affricates?
5. Discuss how coarticulation affects speech production. How is this clinically useful to SLPs working with children who have a speech sound disorder?
Answers to Exam Questions

Answers to Chapter 2 Exam Questions:

Multiple Choice:
1. C
2. A
3. C
4. A
5. D
6. B
7. D
8. B
9. A
10. B

True/False:
1. True.
2. True.
3. False.
4. False.
5. True.
6. False.
7. True.
8. True.
10. True.

Short Answer:
1. Tongue, lips, jaw, and velopharynx
2. Nasal: before/after a nasal consonant; Voiced: when whispering.
3. Anticipatory happens before it’s required appearance (e.g., nasalization of /q/ in the word “can”) and retentive happens after it’s required appearance (e.g., nasalization of /i/ in the word “neat”).
4. Answers can vary, but unaspirated /p/ as in “pet” and aspirated /p/ as in final “cap” are two common ones.

Full file at https://testbankgo.info/p/
5. Fricatives.

Essay:

1. Answers will vary, but students should discuss the open vocal tract that is characteristic of vowels whereas consonants have a constriction at some point along the vocal tract.

2. Answers will vary, but students should discuss the traditional phonetic description approach in comparison to the distinctive features approach.

3. Answers will vary, but students should discuss the frequency, amplitude, and duration of speech sounds.

4. Fricatives have continuous airflow whereas affricates start out like fricatives but then have a constriction of the vocal tract like a stop.

5. Answers will vary but students should indicate a knowledge of phonemic contexts and how this happens in normal speakers. Additionally, this happens in children with speech sound disorders and can be used to facilitate correct production of sounds during treatment.