

DOCUMENT RESUME

ED 235 147

SP 023 063

AUTHOR McCarthy, Patricia S.; Flipppo, Rona F.  
 TITLE Study Guide for TCT in Hearing Impaired.  
 INSTITUTION Georgia State Dept. of Education, Atlanta.  
 PUB DATE May 83  
 NOTE 13p.; For related documents, see SP 023 053-079.  
 PUB TYPE Guides - Classroom Use - Materials (For Learner) (051)

EDRS PRICE MF01/PC01 Plus Postage.  
 DESCRIPTORS \*Educational Objectives; \*Hearing Impairments; Higher Education; Preservice Teacher Education; \*Program Content; \*Special Education Teachers; Study Guides; \*Teacher Certification; Teacher Qualifications; Teaching (Occupation); Test Coaching; Testing Programs; \*Tests  
 IDENTIFIERS \*Georgia Teacher Certification Testing Program

ABSTRACT This study guide was specifically designed for individuals preparing to take the Georgia Teacher Certification Test (TCT) in hearing impaired. The test covers four subareas: (1) anatomy, physiology, and physics of sound; (2) audiological interpretation, etiology, and identification; (3) amplification, language, and communications; and (4) other skills. The guide contains an alphabetical list of references for test objectives in each of the four test subareas. (JMK)

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STUDY GUIDE FOR TCT IN HEARING IMPAIRED

Published by

Georgia Department of Education

Georgia Teacher Certification Testing Program

Atlanta, Georgia 30334

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National Evaluation Systems, Inc., has prepared for distribution by the Georgia Department of Education the set of content objectives found in this Study Guide. These objectives have been verified as important content requirements for initial certification. Not all of the listed objectives have had test items written for them. The selected objectives have not been identified. All objectives which appear here are certification requirements and a sampling of them will be tested.

When the project to develop the Georgia Teacher Certification Tests (TCT) was begun in November 1976, an Ad Hoc Committee composed of Georgia educators was appointed to work with NES on each TCT. The function of these Ad Hoc Committees was to review all NES-generated materials with a goal of making the materials more reflective of Georgia education needs. The first step in the test development process was that of content domain specification. Educators identified all content knowledge that an applicant would need to know to function effectively in a Georgia school. This content was further defined into content objectives, which were sent to currently practicing Georgia educators for verification. These educators provided actual ratings of the "job-relatedness" of the content objectives. At that point, it was possible to identify, from the original domain specification, the extent of essentiality of specific content skills for successful performance on the job. Test items were written for the most essential objectives which spanned the content of the field.

The purpose of providing objectives is to explicitly define the content required of an applicant for certification in this field. Further, the statement of these objectives should assist in preparing for the criterion-reference content knowledge test. We encourage applicants to study these materials, which will enhance their understanding of the content field and alleviate any unnecessary concerns about the nature of the Georgia Teacher Certification Tests.

Along with these materials go hopes for a rewarding career in education.

If you have questions or desire further information,  
contact:

Performance-Based Certification  
Division of Staff Development  
1858 Twin Towers East  
Atlanta, Georgia 30334  
(404) 656-2556

Georgia Department of Education

Charles McDaniel, State Superintendent of Schools

The Georgia Department of Education wishes to express its appreciation to the group of Georgia educators listed below who volunteered their time and expertise to develop this Study Guide.

Patricia S. McCarthy, Chairperson  
University of Georgia

Joseph E. Hartung  
Georgia State University

Peggy G. Von Almen  
University of Georgia

Rona F. Flippo, Consultant to Committee  
Georgia Department of Education

Georgia Department of Education  
Atlanta, Georgia  
May, 1983

STUDY GUIDE FOR TCT IN HEARING IMPAIRED  
Georgia Teacher Certification Testing Program  
Field 22: Hearing Impaired

INTRODUCTION

This Study Guide was specifically designed for persons preparing to take the Georgia Teacher Certification Test (TCT) in Hearing Impaired. The test was developed by the National Evaluation System, Inc., and educators in the state of Georgia. The test covers four subareas: Anatomy, Physiology and Physics of Sound; Audiological Interpretation, Etiology and Identification; Amplification, Language and Communications; Other Skills.

This Study Guide has been organized by these subareas and follows the sequential order found within the published content objectives of the TCT in Hearing Impaired. The guide contains an alphabetical list of references to the test objectives for each of the four test subareas.

This listing of numerous sources does not mean that all are needed to grasp a particular concept or meet a given objective. Some examinees will have better access to certain sources than to other sources. Additionally, certain readings cover several topics. The references given are suggested references only and are not intended to be an exhaustive or complete listing.

TEST FORMAT

1. The TCT items are multiple choice or fill-in.
2. There are no penalties for guessing when unsure of an answer.
3. Examinees are given 3½ hours of actual test time, but may request up to an additional hour at the end of the session.
4. The total score determines pass/fail. The subarea scores are listed for your information only.

Examinees wanting specific help with test-taking skills should ask for assistance from their college/university counseling center and/or refer to one or more of the references listed below:

Flippo, R. F., Testwiseness. Rehoboth, MA: Twin Oaks Publishing, 1983.

Millman, J., & Pauk, W. How to Take Tests. New York: McGraw Hill, 1969.

Pauk, W. How to Study in College (2nd ed.). Boston: Houghton Mifflin, 1974.

Preston, R. C., & Botel, M. How to Study. Chicago: SRA, 1974.

Raygor, A. L., & Wark, D. M. Systems for Study. New York: McGraw Hill, 1970.

GEORGIA TEACHER CERTIFICATION TESTING PROGRAM

CONTENT OBJECTIVES AND RECOMMENDED READINGS

FIELD 22: HEARING IMPAIRED

I. ANATOMY, PHYSIOLOGY AND PHYSICS OF SOUND

A. Objective

Identify the primary components and functions of the auditory mechanism.

Analyze the functions of the diaphragm and lungs as the sources of sound.

Analyze the functions of the larynx and vocal cords in the process of phonation.

Identify the elements involved in articulation.

Analyze the relationship of the central nervous system to the vocal mechanism.

Demonstrate an understanding of the generation, transmission, and reception of sound waves.

Demonstrate an understanding of frequency and intensity as physical attributes of sound measurement.

B. Recommended Readings

Aronson, A. Clinical Voice Disorders. New York: Thieme-Stratton, Inc., 1980, chapters 2 and 3.

Boone, D. R. The Voice and Voice Therapy. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1971, pp. 14-44, 156-160.

Minifie, F. D.; Hixon, T. J.; & Williams, F. Normal Aspects of Speech, Hearing and Language. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1973, Chapters 1, 2, 3, 4, 5, 6, 7, 8.

Zemlin, W. R. Speech and Hearing Science. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1981, chapter 3.

II. AUDIOLOGY AND AMPLIFICATION

A. Objective

Demonstrate an understanding of the definitions and characteristics of the different degrees of hearing loss.

Demonstrate an understanding of the nature and symptoms of conductive hearing loss.

Identify the causes of hearing impairment (congenital, traumatic, drug of disease-related, other).

Identify additional handicapping conditions which commonly occur with hearing impairment.

Identify behaviors which indicate that a student should be tested for possible hearing impairment.

Demonstrate an understanding of the types of assessment that should be conducted with a person suspected of suffering from a hearing impairment.

Differentiate between body and ear-level hearing aids.

Identify the major parts of a hearing aid (microphone, receiver, cord, ear mold, battery, switches).

Identify the types and parts of auditory training units.

Identify the functions of amplification units.

Demonstrate an understanding of the teacher's responsibility for maintaining amplification equipment and for troubleshooting when problems arise.

#### B. Recommended Readings

Bess, F. Childhood Deafness: Causation, Assessment, and Management. New York: Grune and Stratton, 1977.

Davis, H., & Silverman, S. R. Hearing and Deafness. 4th ed. New York: Holt, Rinehart, and Winston, Inc., 1978.

Davis, J. M., & Hardick, E. J. Rehabilitative Audiology for Children and Adults. New York: John Wiley and Sons, Inc., 1981.

Gauger, J. S. Orientation to Hearing Aids. Washington: A. G. Bell Assoc., 1978.

Gerber, S. E. Audiometry in Infancy. New York: Grune and Stratton, 1977.

Guidelines for audiometric symbols. ASHA. 1974, 16, 260-264.

Jaffe, B. F. Hearing Loss in Children. Baltimore: University Park Press, 1977.

Johnson, E. W. Let's look at the child - not the audiogram. Volta Review. 1967, 69, 306-310.

Nober, E. H. Diagnosis and meaning of deafness. Volta Review, 1966, 68, 482-490.

Northern, J. L., & Downs, M. P. Hearing in Children. 2nd ed. Baltimore: Williams and Wilkins Co., 1978.

Pollock, M. B., & Pollock, K. C. Letter to the teacher of a hard-of-hearing child. Childhood Education, 1971, 47, 206-209.



Roeser, R. J., & Downs, M. P. Auditory Disorders in School Children. New York: Thieme-Stratton, Inc., 1981.

Sanders, D. A. Aural Rehabilitation. 2nd ed.; Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1982.

Stassen, R. A. I have one in my class who's wearing hearing aids. In W. H. Northcott (Ed.), The Hearing Impaired Child in a Regular Classroom: Preschool, Elementary, and Secondary Years. Washington: A. G. Bell Assoc., 1973.

### III. LANGUAGE AND COMMUNICATIONS

#### A. Objective

Analyze the components of language (syntax, morphology, semantics, phonology, and idioms).

Distinguish among the receptive, expressive, semantic, and syntactic aspects of normal language acquisition.

Analyze the difficulties of the hearing impaired in acquiring receptive language.

Analyze the difficulties of the hearing impaired in acquiring expressive language.

Analyze the difficulties experienced by the hearing impaired in syntactic language acquisition (basic structure and transformation).

Analyze the difficulties experienced by the hearing impaired in acquiring semantic language (lexicon, semantic rules, discourse).

Distinguish among the major methods of language assessment appropriate for the hearing impaired child.

Identify the methods and uses of a "natural" language instructional approach.

Identify the methods and uses of a "structural" approach to teaching language to the hearing impaired.

Analyze the supra-segmental elements of speech (e.g., pitch, intensity, phrasing, etc.):

Analyze the factors involved in the pronunciation of vowel sounds.

Analyze the factors involved in the pronunciation of consonants.

Distinguish among the different methods of assessing speech.

Identify the types and uses of orthographic systems.

Compare the major instructional approaches for teaching speech to the hearing impaired.

Differentiate between the synthetic and analytic approaches to speech reading.

Interpret an audiogram in terms of pure-tone and formant information.

Interpret an audiogram in terms of pure-tones and speech awareness threshold (SAT).

Interpret an audiogram in terms of speech reception threshold (SRT) and speech discrimination scores.

Identify the components of auditory processing.

Distinguish among the major sign language systems currently in use.

Demonstrate an understanding of special characteristics of the hearing impaired in regard to reading and writing.

Distinguish among the different communication methods.

#### B. Recommended Readings

Avery, C. B. Orthographic systems used in education of the deaf. The Volta Review, 1967, 69, 208-210.

Barlow, H. B. Possible principles underlying the transformation of sensory messages. In W. A. Rosenblith (Ed.), Sensory Communication. Cambridge, Mass.: MIT Press, 1961.

Berg, F. S., & Fletcher, S. G. The Hard of Hearing Child. New York: Grune & Stratton, 1970.

Bloom, L., & Lahey, M. Language Development and Language Disorders. New York: John Wiley & Sons, 1978.

Calvert, D. R., & Silverman, S. R. Speech and Deafness. Washington: A. G. Bell Assoc., 1975.

Connor, L. E. (Ed.), Speech and the Deaf Child: Knowledge and Use. Washington: A. G. Bell Assoc., 1971.

Davis, H., & Silverman, H. Hearing and Deafness. New York: Holt Rinehart and Winston, 4th edition, 1978, part 3.

Denes, P. B., & Pinson, E. N. The Speech Chain. New York: Bell Telephone Laboratories, 1963.

Erber, N. P. Auditory, visual, and auditory-visual recognition of consonants by children with normal and impaired hearing. J. Speech Hear. Res., 1972, 15, 413-422.

Groht, M. Natural Language for Deaf Children. Washington: A. G. Bell Assoc., 1978.

- Hart, B. Teaching Reading to the Deaf. Washington: A. G. Bell Assoc., 1963.
- Hartbauer, R. Aural Habilitation. Springfield, Ill.: Charles C. Thomas, 1975.
- Hasenstab, M. S. Language evaluation. In M. S. Hasenstab & J. S. Horner (Eds.) Comprehensive Intervention with Hearing Impaired Infants and Preschool Children. Maryland: Aspen Publications, 1982.
- Hirsch, I. J. Information processing in input channels for speech and language: The significance of the serial order of stimuli. In C. H. Millikan & F. L. Darley (Eds.), Brain Mechanisms Underlying Speech and Language. New York: Grune and Stratton, 1967.
- Hudgins, C. V., & Numbers, F. C. An investigation of the intelligibility of the speech of the deaf. Genet. Psychol. Monogr., 1942, 25, 289-392.
- Katz, J. Handbook of Clinical Audiology. Baltimore: Williams & Wilkins, Co., 2nd edition, 1978, Section 3.
- Kretschmer, R. P., & Kretschmer, L. W. Language Development and Intervention with the Hearing Impaired. Baltimore: University Park Press, 1978.
- Leshin, G. Speech for the Hearing Impaired Child. Tucson: University of Arizona Press, 1974.
- Lindfors, J. W. Children's Language and Learning. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1980.
- Ling, D. Speech and the Hearing Impaired child. Washington: A. G. Bell Assoc., 1976.
- Miller, G. A., & Johnson-Laird, P. N. Language and Perception. Cambridge, Mass.: The Belknap Press, 1976.
- Moore, D. F. Educating the Deaf. 2nd Ed. Boston: Houghton-Mifflin Co., 1982.
- O'Neill, J. J., & Oyer, H. J. Visual Communication for the Hard of Hearing. 2nd ed. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1981.
- Ross, M., & Giolas, T. G. Auditory Management of Hearing Impaired Children. Baltimore: University Park Press, 1978.
- Sanders, D. A., Aural Rehabilitation. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1971.
- Scroggs, C. Analyzing the language of hearing impaired children with language acquisition problems. American Annals of the Deaf, 1977, 122, 403-406.
- Smith, F. (Ed.); Psycholinguistics and Reading. New York: Holt, Rinehart and Winston, 1973.

- Streng, A. Syntax, Speech and Hearing. New York: Grune and Stratton, 1977.
- Streng, A., Kretschmer, R. R., & Kretschmer, L. W. Language, Learning, and Deafness: Theory, Application, and Classroom Management. New York: Grune and Stratton, 1978.
- Van Uden, A. A World of Language for Deaf Children. Part I: Basic Principles: A Maternal Reflective Method. The Netherlands, Rotterdam University Press, 1970.
- Vorce, E. Teaching Speech to Deaf Children. Washington: The Volta Bureau, 1974.
- Wilbur, R. An explanation of deaf children's difficulty with certain syntactical structures of English. Volta Review, 1977, 79, 85-92.
- Wolf, M., Mc Quillan, M. K., & Radwin, E. (Eds.). Thought and Language/Language and Reading. Cambridge, MA.: Harvard Education Review, 1980.

#### IV. OTHER SKILLS

##### A. Objective

Identify major figures and events in the treatment and education of the hearing impaired (e.g., Gallaudet, Bell, Clarke).

Compare the advantages and disadvantages of different types of educational settings for hearing impaired children (e.g.; residential day school, day class).

Identify the different types of schools (e.g., public, private, state) that provide services for hearing impaired students.

Identify the titles and responsibilities of different types of teachers of the hearing impaired.

Analyze the roles of support personnel in the education of hearing impaired students.

Demonstrate knowledge of the special services which are offered to hearing impaired persons and their families.

Demonstrate an understanding of the provisions of federal and state legislation and their influence on the education of hearing impaired students.

Demonstrate knowledge of the provisions of the Adequate Program for Education in Georgia (APEG).

Identify the names and functions of the major professional associations and organizations in the hearing impaired field.

Analyze the factors involved in developing and implementing Individualized Education Programs.

Identify factors which should be considered when designing, selecting, or modifying curriculum or instructional materials for use with the hearing impaired.

Demonstrate an understanding of behavior modification.

Analyze the advantages and disadvantages of group and individual instruction.

Analyze the issues involved in mainstreaming hearing impaired students.

Identify the uses of learning centers with hearing impaired students.

Identify the types and uses of instructional equipment.

B. Recommended Readings

Gagne, R. The Condition of Learning. New York: Holt, Rinehart, and Winston, 1970.

Georgia Department of Education. Hearing Impaired Resource Manual for Progress for Exceptional Children Volume IX. Atlanta: Georgia Department of Education, 1981.

Kirby, A. M., Sr. (Ed.): Curriculum, content, and change. The Volta Review, 1980, 82(6), 323-446.

Kretschmer, R. R.; & Kretschmer, L. W. Language Development and Intervention with the Hearing Impaired. Baltimore: University Park Press, 1978.

Moore, D. F. Educating the Deaf (2nd. Ed.). Boston: Houghton-Mifflin Company, 1981.

Murphy, A. P. (Ed.). The families of hearing impaired children. The Volta Review, 1979, 81, 5.

Nix, G. W. (Ed.). Mainstream Education for Hearing Impaired Children. New York: Grune & Stratton, 1976.

Northcott, W. H. (Ed.). The Hearing Impaired Child in a Regular Classroom: Preschool, Elementary, and Secondary Years. Washington: A. G. Bell Assoc., 1973.

Northern, J. L.; & Downs, M. P. Hearing in Children. 2nd Ed. Baltimore: Williams and Wilkins Co., 1978.

Stepp, R. E. Educational media and deaf education: The emerging literature. The Volta Review, 1968, 70(6), 465-474.