

Academic year 2023-24 (תשפ"ד)

Course title (English): Diagnosis and prevention of children's speech disorders

Course title (Hebrew): אבחון ומניעה של הפרעות דיבור בילדים

Course number: 131.1.0144

Course slot (semester/s, weekday/s, hours): Wednesday, 04.00-06.00 pm

Lecturer: Prof. Elena Kazachiner

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Course description & objectives: *Diagnosis and prevention of children's speech disorders* introduces students to definition of children's speech development norm and pathology, the types of children's speech disorders' kinds and types according to classification; to different tools, tests and methods of children's speech development observing and diagnosis. The attention will be also paid to prevention of children's speech development and to aspects of speech therapist's activity devoted to diagnosis and prevention of children's speech disorders.

Course requirements:

Passing the quiz and final paper is obligatory for passing the course.

Course Assessment:

Quiz – 20%

Final paper – 80%

For those students who are currently in miluim, all the materials (detailed presentations, hyperlinks etc.), quiz and a text of final paper of the course are available in Moodle system. The students can get consultations and other kinds of assistance during office hours or any time by agreement with lecturer.

Topics & bibliography

Lesson 1. Introduction. Peculiarities of children's speech development in different age periods

Language Skills in Children: Development, Definition & Types. The difference between speech and language development.

Etiology of speech and language disorders in children.

Facts about language impairment in children.

Various types of language and speech impairment: Expressive language impairment.

Receptive language impairment. Speech impairment.

Definition of Speech and Language Pathology. Normal Language Development for Young Children. A checklist of milestones for the normal development of speech and language skills in children from birth to 10 years of age. Levers for Language Growth: Characteristics and Predictors of Language Trajectories between 4 and 7 Years. Clinical-educational and psychoeducational classification of speech disorders. Clinical characteristics of language regression in children. Characteristics of adult speech which predict children's language development.

Reading

1. Holm, A., Crosbie, S., & Dodd, B. (2007). Differentiating normal variability from inconsistency in children's speech: Normative data. *International Journal of Language & Communication Disorders*, 42(4), 467-486.
2. Law, J., & Conway, J. (1992). Effect of abuse and neglect on the development of children's speech and language.
3. Lee, S., Potamianos, A., & Narayanan, S. (1997). Analysis of children's speech: Duration, pitch and formants. In *Fifth European Conference on Speech Communication and Technology*.
4. MacDonald, E. N., Johnson, E. K., Forsythe, J., Plante, P., & Munhall, K. G. (2012). Children's development of self-regulation in speech production. *Current Biology*, 22(2), 113-117.
5. Stackhouse, J., & Wells, B. (1997). *Children's speech and literacy difficulties: A psycholinguistic framework*. Wiley.

Part 1. Organization of a diagnostic examination of children's mastery of aspects of language and speech skills

Lesson 2. The main approaches to the organization of the child's speech development examination

Screening for language and speech delay in children under five years. Children with minor linguistic disorders. Children with moderate speech-language disorders. Children with severe speech-lingual disorders. Screening tests for detecting language and speech delay in children under 5 years of age. The interventions for children identified with language and speech delay for improving (short- and long-term) language and speech outcomes. Potential harms of screening and interventions for language and speech delay for children and their family. Development and Validation of an Observational Tool for Examining Early Language in Play Settings. Speech or Language Impairment Evaluation Guidance. Language Test Development and Validation.

Reading

1. Hustad, K. C., Allison, K., McFadd, E., & Riehle, K. (2014). Speech and language development in 2-year-old children with cerebral palsy. *Developmental neurorehabilitation*, 17(3), 167-175.

2. Knowles, T., Clayards, M., & Sonderegger, M. (2018). Examining factors influencing the viability of automatic acoustic analysis of child speech. *Journal of Speech, Language, and Hearing Research*, 61(10), 2487-2501.
3. Leung, A. K., & Kao, C. P. (1999). Evaluation and management of the child with speech delay. *American family physician*, 59(11), 3121.
4. Prizant, B. M., Audet, L. R., Burke, G. M., Hummel, L. J., Maher, S. R., & Theodore, G. (1990). Communication disorders and emotional / behavioral disorders in children and adolescents. *Journal of Speech and Hearing Disorders*, 55(2), 179-192.
5. Schlanger, B. B. (1953). Speech examination of a group of institutionalized mentally handicapped children. *Journal of Speech and Hearing Disorders*, 18(4), 339-349.
6. Zhuravlova, L., Sheremet, M., Suprun, D., Fedorenko, S., & Dubiaha, S. (2021). Results of the examination of primary school students by means of speech therapy screening. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, 12(1), 326-342.

Lesson 3. Examination of sound pronunciation

Examples of pronunciation diagnostic testing.

Types of Pronunciation Tests:

Reading Aloud. Interview. Dictation. Test Segments. Same or Different? a or b (or c)? Which Definition? Which Ones Are the Same? Fill the Gap. Using colour cards. Tests other than listening comprehension. Phonetic Transcription. Finding an Odd Member. Regrouping. Matching. Miscellaneous Ways of Testing Pronunciation. Testing Word Stress. Testing pronunciation skill competence of both normal and retarded readers. Tongue Strength in Children with and Without Speech Sound Disorders. Tests for checking articulation, listening and pronunciation of children who have speech disorders.

Reading

1. Dudy, S., Bedrick, S., Asgari, M., & Kain, A. (2018). Automatic analysis of pronunciations for children with speech sound disorders. *Computer speech & language*, 50, 62-84.
2. Green, J. R., Moore, C. A., & Reilly, K. J. (2002). The sequential development of jaw and lip control for speech.
3. Gudra, T., Opieliński, K. J., & Sobczak, T. (2014). Ultrasonic examination of the tongue shape changes in the process of articulation of vowels. *Archives of Acoustics*, 31(4 (S)), 9-16.
4. Lee, S., Potamianos, A., & Narayanan, S. (1999). Acoustics of children's speech: Developmental changes of temporal and spectral parameters. *The Journal of the Acoustical Society of America*, 105(3), 1455-1468.
5. Strömbergsson, S. (2014). The/k/s, the/t/s, and the inbetweens: Novel approaches to examining the perceptual consequences of misarticulated speech (Doctoral dissertation, KTH Royal Institute of Technology).
6. Schwartz, R. G., & Leonard, L. B. (1982). Do children pick and choose? An examination of phonological selection and avoidance in early lexical acquisition. *Journal of child language*, 9(2), 319-336.

Lesson 4. Examination of the child's vocabulary

The place of vocabulary in language assessment. Tests Of Vocabulary Size. Dimensions of Vocabulary Assessment.

Vocabulary testing techniques. Multiple choice. Cloze test. Word formation. Matching Odd one out. Writing sentences. Dictation. Sentence completion. Definitions. Translation. Writing. Reading. Oral testing. Associations Placing. Synonyms and antonyms. Transformation. Substitution.

Tests for checking vocabulary of children who have speech disorders.

Reading

1. Charles-Luce, J., & Luce, P. A. (1995). An examination of similarity neighbourhoods in young children's receptive vocabularies. *Journal of Child Language*, 22(3), 727-735.
2. Elleman, A. M., Steacy, L. M., Olinghouse, N. G., & Compton, D. L. (2017). Examining child and word characteristics in vocabulary learning of struggling readers. *Scientific Studies of Reading*, 21(2), 133-145.
3. Hadley, E. B., Dickinson, D. K., Hirsh-Pasek, K., Golinkoff, R. M., & Nesbitt, K. T. (2016). Examining the acquisition of vocabulary knowledge depth among preschool students. *Reading Research Quarterly*, 51(2), 181-198.
4. Rowe, M. L. (2012). A longitudinal investigation of the role of quantity and quality of child-directed speech in vocabulary development. *Child development*, 83(5), 1762-1774.
5. Vatalaro, A., Culp, A. M., Hahs-Vaughn, D. L., & Barnes, A. C. (2018). A quasi-experiment examining expressive and receptive vocabulary knowledge of preschool head start children using mobile media apps. *Early Childhood Education Journal*, 46, 451-466.
6. Yilmaz, R. M., Topu, F. B., & Takkaç Tulgar, A. (2022). An examination of vocabulary learning and retention levels of pre-school children using augmented reality technology in English language learning. *Education and Information Technologies*, 27(5), 6989-7017.

Lesson 5. Examination of the grammatical structure of speech

General grammar testing problems. The most common test formats for testing grammar. Examples of Purpura's grammar constructs for assessment purposes. The importance and means of testing both implicit and explicit grammatical knowledge / ability. Correction for guessing.

Some types of objective items used to test awareness of the grammatical features of the language: multiple-choice, error recognition, rearrangement, completion, transformation, word changing, broken sentence, pairing and matching, combination, and addition items.

Multiple-Choice Tests. Error Recognition Tests. Rearrangement Tests. Completion Tests. Transformation Tests. Pairing and Matching Tests. Combination and Addition Tests.

Innovations in grammar assessment. Redefining the construct. Partial scoring. The social dimension. The standard.

Tests for checking grammar skills of children who have speech disorders.

Reading

1. Cleave, P. L., & Rice, M. L. (1997). An examination of the morpheme BE in children with specific language impairment: The role of contractibility and grammatical form class. *Journal of Speech, Language, and Hearing Research*, 40(3), 480-492.
2. Dromi, E., Leonard, L. B., & Shteiman, M. (1993). The grammatical morphology of Hebrew-speaking children with specific language impairment: Some competing hypotheses. *Journal of Speech, Language, and Hearing Research*, 36(4), 760-771.
3. McCormick, D. E., & Vercellotti, M. L. (2013). Examining the impact of self-correction notes on grammatical accuracy in speaking. *TESOL Quarterly*, 47(2), 410-420.
4. Smith, M. E. (1933). Grammatical errors in the speech of pre-school children. *Child Development*, 4(2), 183-190.
5. Thompson, C. K., Cho, S., Hsu, C. J., Wieneke, C., Rademaker, A., Weitner, B. B., ... & Weintraub, S. (2012). Dissociations between fluency and agrammatism in primary progressive aphasia. *Aphasiology*, 26(1), 20-43.
6. Thompson, C. K., & Mack, J. E. (2014). Grammatical impairments in PPA. *Aphasiology*, 28(8-9), 1018-1037.

Lesson 6. Diagnostics of the level of oral speech development

Process and Outcome in Oral Assessment.

Testing the speaking skills. Methods of testing oral proficiency. Monologue, Dialogue, and Multilogue speaking tests. Testing speaking using visual material. The portfolio approach.

Validity Considerations in Designing an Oral Test. Validity. Reliability. Other Validity Consideration. Topic Validity in Speaking Tests. Computer-Based Speaking Test. Tests for checking oral speech skills of children who have speech disorders. A review of standardized tests of nonverbal oral and speech motor performance in children. Methods for the Identification of Communication Disorders. A motor speech assessment for children with severe speech disorders: reliability and validity evidence. Differential diagnosis of motor speech dysfunction in children. Tools for the assessment of childhood apraxia of speech.

Reading

1. Macaulay, M. (2011). Processing varieties in English: An examination of oral and written speech across genres. UBC Press.
2. Ounis, A. (2017). The assessment of speaking skills at the tertiary level. *International Journal of English Linguistics*, 7(4), p. 95.
3. Ruscello, D. M. (2008, November). An examination of nonspeech oral motor exercises for children with velopharyngeal inadequacy. In *Seminars in speech and language* (Vol. 29, № 04, pp. 294-303). © Thieme Medical Publishers.
4. Ruscello, D. M., & Vallino, L. D. (2020). The use of nonspeech oral motor exercises in the treatment of children with cleft palate: A re-examination of available evidence. *American Journal of Speech-Language Pathology*, 29(4), 1811-1820.
5. St Louis, K. O., & Ruscello, D. M. (1981). The Oral Speech Mechanism Screening Examination (OSMSE).

Lesson 7.

Diagnostics of the level of written speech mastery

Student writing can be evaluated on five product factors: fluency, content, conventions, syntax, and vocabulary. Characteristics of writing tests.

Adapting Power and Wilgus's analysis of patterns suggests a simple schema for evaluating the syntactic maturity of a student's writing:

Level 1. Repetitious use of a single pattern (simple sentences)

Level 2. Use of a variety of simple sentence patterns.

Level 3. First expansions: (a) addition of an adverbial or gerund phrase, or (b) the making of a compound sentence by combining two simple sentences with the word and.

Level 4. Complex sentences (transformations in which one sentence is embedded within another as a subordinate clause)

Assessment of writing skills should take into account a variety of purposes and text structures. Purposes and genres to consider include: personal narrative, story narrative, descriptive, explanation of a process, factual report, letter, compare-contrast, and persuasive.

Simple ways to assess the writing skills of students with learning disabilities.

Reading

1. Bourke, L., Davies, S. J., Sumner, E., & Green, C. (2014). Individual differences in the development of early writing skills: Testing the unique contribution of visuo-spatial working memory. *Reading and Writing*, 27, 315-335.
2. Breland, H. M., & Gaynor, J. L. (1979). A comparison of direct and indirect assessments of writing skill. *Journal of Educational Measurement*, 119-128.
3. Caudery, T. (1990). The validity of timed essay tests in the assessment of writing skills. Hartnett, C. G. (1978). *Measuring Writing Skills*.
4. Crocker, L. (1987). Assessment of writing skills through essay tests. *New Directions for Community Colleges*, 59, 45-54.
5. Prunty, M. M., Barnett, A. L., Wilmut, K., & Plumb, M. S. (2014). An examination of writing pauses in the handwriting of children with Developmental Coordination Disorder. *Research in developmental disabilities*, 35(11), 2894-2905.

Part 2. The main aspects of preventing the speech disorders' occurrence

Lesson 8. Prevention of children's speech disorders' occurrence in early and preschool age

Preventive Measures against Speech Disorders in Early Childhood.

The prevention of communication disorders. Defining Primary, Secondary and Tertiary Prevention. Examples of strategies for the prevention of communication disorders.

Speech sound disorder prevention tips.

Stuttering prevention tips.

Voice disorders prevention tips.

Language disorder prevention tips.

The concept and contents of the program "I Learn How to Speak Correctly". The program aims at creating pedagogic measures to provide preventive service to young children. The program consists of the following sections:

Section 1. "Learn to develop your hands".

Section 2. "Learn to think".

Section 3. "Learn to understand words".

Section 4. "Learn to speak".

Section 5. "We teach the whole family".

Reading

1. Furqatovna, G. V. (2022). Early Prevention of Psycho-Speech Disorders during Febrile Conversions in Children. EUROPEAN JOURNAL OF INNOVATION IN NONFORMAL EDUCATION, 2(11), 74-79.

2. Hegazi, M., Neumann, K., & Rosenfeld, J. (2020). Prevention of developmental disorders of speech and language.

3. Kornev, A. N. (2012). School disadaptation in children with speech underdevelopment and its prevention. Psychology in Russia, 5, 436.

4. Peter, B., Davis, J., Cotter, S., Belter, A., Williams, E., Stumpf, M., ... & Potter, N. (2021). Toward preventing speech and language disorders of known genetic origin: first post-intervention results of babble Boot Camp in children with classic galactosemia. American journal of speech-language pathology, 30(6), 2616-2634.

5. Platokhina, N. A., Samarina, I. V., & Abashina, N. N. (2016). Preventive Measures against Speech Disorders in Early Childhood. Procedia-Social and Behavioral Sciences, 233, 247-251.

6. Steer, M. D. (1971). Prevention and Diagnosis of Speech Disorders: A Multidisciplinary Approach. The Japan Journal of Logopedics and Phoniatrics, 12(1), 50-52.

7. Wyatt, G. L. (1965). Speech and language disorders in preschool children: a preventive approach. Pediatrics, 36(4), 637-647.

Lesson 9. Development of fine motor skills as one of the ways to prevent reading and writing disorders at school age

Top five tips for supporting child's advanced fine motor skills:

1) Handwriting practice - start with your child's level of development;

2) Foster advanced fine motor skills through a range of activities;

3) Cursive writing;

4) Tracing lines and letters;

5) Drawing a person

Fine motor skills contribute to early reading development.

Handwriting Skills: Knowing letters of the alphabet. Visual perceptual skills. Visual motor skills. Following a sequence. Controlling the paper to stay within the lines. Letter formation

Understanding left to right progression. Understanding top to bottom progression. Tracking the movement of the hand, pencil and paper. Crossing midline skills. Bilateral coordination skills. Fine motor skills including in-hand manipulation.
Importance of Fine Motor Skills & Handwriting.

Reading

1. Chandler, M.C., Gerde, H.K., Bowles, R.P., McRoy, K.Z., Pontifex, M.B., Bingham, G.E. (2021). Self-regulation moderates the relationship between fine motor skills and writing in early childhood. *Early Childhood Research Quarterly*, Volume 57, 239-250.
2. Dunsmuir, S. & Blatchford, P. (2004), Predictors of writing competence in 4- to 7-year-old children. *British Journal of Educational Psychology* (2004), 74, 461–48.
3. Seo, S. M. (2018). The effect of fine motor skills on handwriting legibility in preschool age children. *Journal of physical therapy science*, 30(2), 324-327.
4. Suggate, S., Pufke, E., & Stoeger, H. (2018). Do fine motor skills contribute to early reading development? *Journal of Research in Reading*, 41(1), 1-19.
5. Ungerleider, L.G, Doyon, J, & Karni, A. (2002). Imaging brain plasticity during motor skill learning. *Neurobiology of Learning and Memory* 78: 553–564
6. Walsh, B., Smith, A., & Weber-Fox, C. (2006). Short-term plasticity in children's speech motor systems. *Developmental Psychobiology: The Journal of the International Society for Developmental Psychobiology*, 48(8), 660-674.

Lesson 10. The main activities of a speech therapist in the diagnosis, correction and prevention of speech disorders

Speech-language pathologists (SLPs) work to prevent, assess, diagnose, and treat speech, language, social communication, cognitive-communication, and swallowing disorders in children and adults.

Speech therapy techniques for children: Read to your child. Reduce screen time. Be attentive and patient. Play games with your child. Be a good speech model.

Speech therapy techniques for adults: Tongue exercises. Smiling. Puckering your lips. Reading out loud. Playing word games.

Speech therapy offers a number of benefits, including: Improved self-esteem. Increased independence. Improved ability to comprehend and express ideas, thoughts and feelings. School readiness for young children. Enhanced vocal quality. Early language skills. Better swallowing function. Improved quality of life.

Skills required to be a successful speech therapist: compassion and empathy, being patient, active listening, good communication, teamwork, good organization, flexibility.

Reading

1. Butko, G., Shashkina, G., & Drozdova, N. (2021). Formation of the competencies of future teacher-speech therapists in the field of intercultural communication. In *SHS Web of Conferences* (Vol. 98, p. 01015). EDP Sciences.
2. Nigmatullina, I. A. (2015). Features of applying neuropsychological methods in the correctional activities of a speech therapy teacher for prevention of written speech disorders in children with disabilities. *The Social Sciences*, 10(6), 769-774.
3. Shoakhmedova, S. K. (2022). Characteristics of the speech therapist's activity in the general education school in the conditions of inclusive education. *The American Journal of Social Science and Education Innovations*, 4(11), 17-22.
4. Zairova, N. B. (2022). Organization and conduct of speech therapy classes with students with speech disorders in secondary schools. *The American Journal of Interdisciplinary Innovations and Research*, 4(11), 75-80.