

Adolescents with Hearing Loss: Auditory (Rehabilitation) Framework & Factors Influencing Outcomes

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RIDBC Renwick Centre
For Research and Professional Education



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Primary Reference

Duncan, J., Rhoades, E.A., & Fitzpatrick, E.M. (in press 2012). Adolescents with hearing loss: Auditory (re)habilitation. New York: Oxford University Press.

(Duncan, Rhoades, & Fitzpatrick, in press 2012)

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Royal Institute for Deaf & Blind Children

- Royal Institute for Deaf and Blind Children (RIDBC), Sydney, AUSTRALIA
- RIDBC Renwick Centre operates in affiliation with the University of Newcastle
 - Memorandum of Agreement (1992)
 - Academic conjoint appointees

(Duncan, Rhoades, & Fitzpatrick, in press 2012)

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Royal Institute for Deaf & Blind Children

- **Degrees**
 - **Master of Special Education** (three specialisations: Deaf/Hard of Hearing, Blind/Vision Impaired, and Sensory Disabilities)
 - **Graduate Certificate in Educational Studies** (Four specialisations: Sensory Disabilities, Sign Bilingual Education, Listening and Spoken Language, Deaf/Hard of Hearing Early Intervention)
 - **Master of Philosophy** (by research and thesis)
 - **Doctor of Philosophy** (by research and thesis)

(Duncan, Rhoades, & Fitzpatrick, in press 2012)

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Royal Institute for Deaf & Blind Children

2012 Graduate Student Enrolment

Per State & Territory

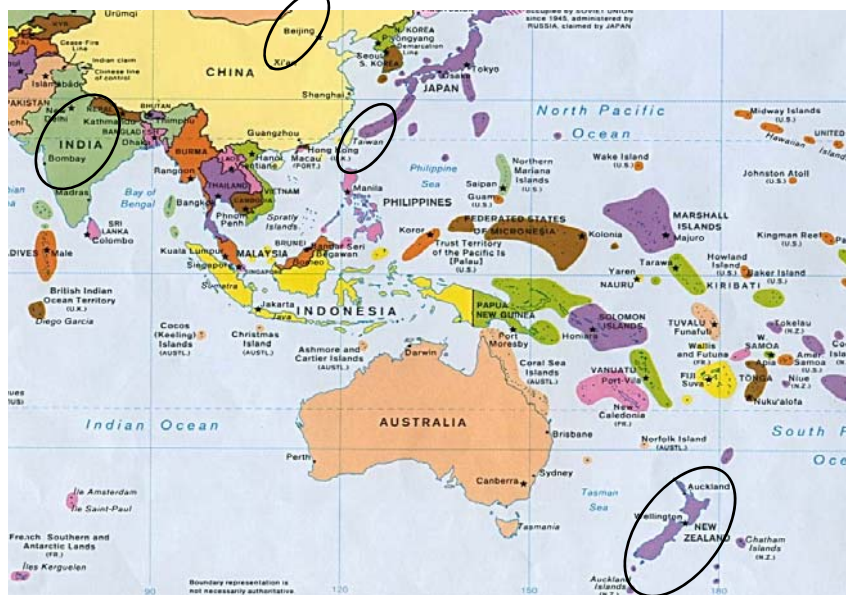
NSW – 292
 VIC – 67
 SA – 57
 WA – 41
 Queensland – 18
 ACT – 15
 Northern Territory – 2

Per Country

New Zealand – 14
 Taiwan - 4
 Hong Kong – 1
 Japan – 1
 Philippines – 1
 Samoa – 1

(Duncan, Rhoades, & Fitzpatrick, in press 2012)

International Engagement



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Australian D/HH Population

- Communication modality
 - ~95% of children who are Deaf/Hard of Hearing use spoken language to communicate
 - ~5% of children who are Deaf/Hard of Hearing use Australian Sign Language (Auslan) to communicate

(Duncan, Rhoades, & Fitzpatrick, in press 2012)

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Australian Practitioners

- Auditory (re)habilitation practitioners working with adolescents enrolled at RIDBC Renwick Centre
 - 90% itinerant teachers of the deaf working in independent schools and public education departments
 - 7% speech pathologist working in the not-for-profit sector
 - 3% audiologists working in the not-for-profit sector

(Duncan, Rhoades, & Fitzpatrick, in press 2012)

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Adolescents

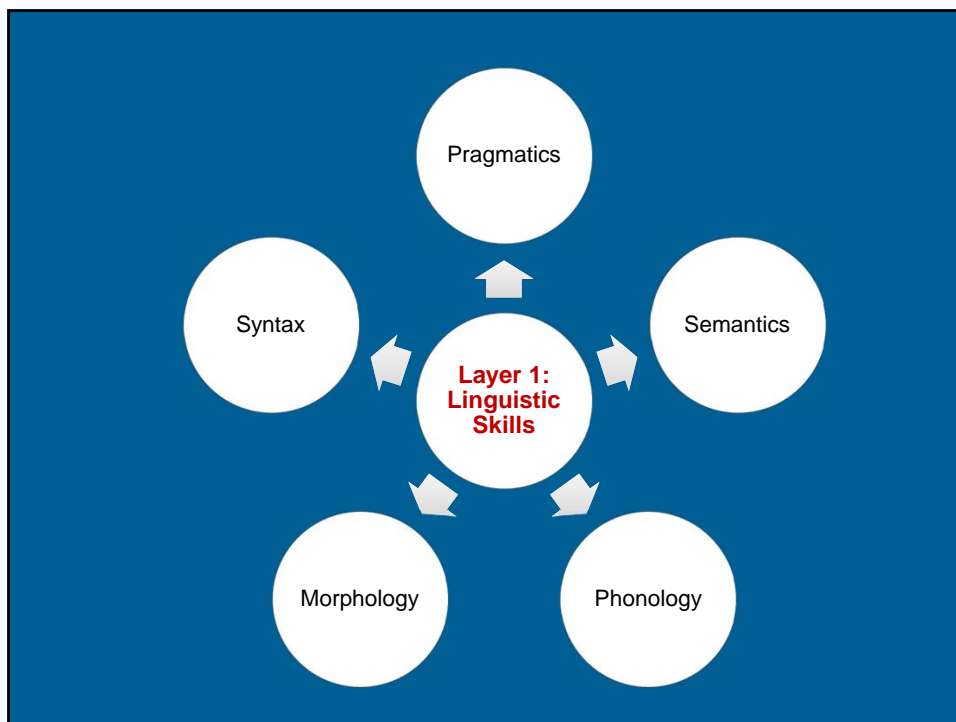
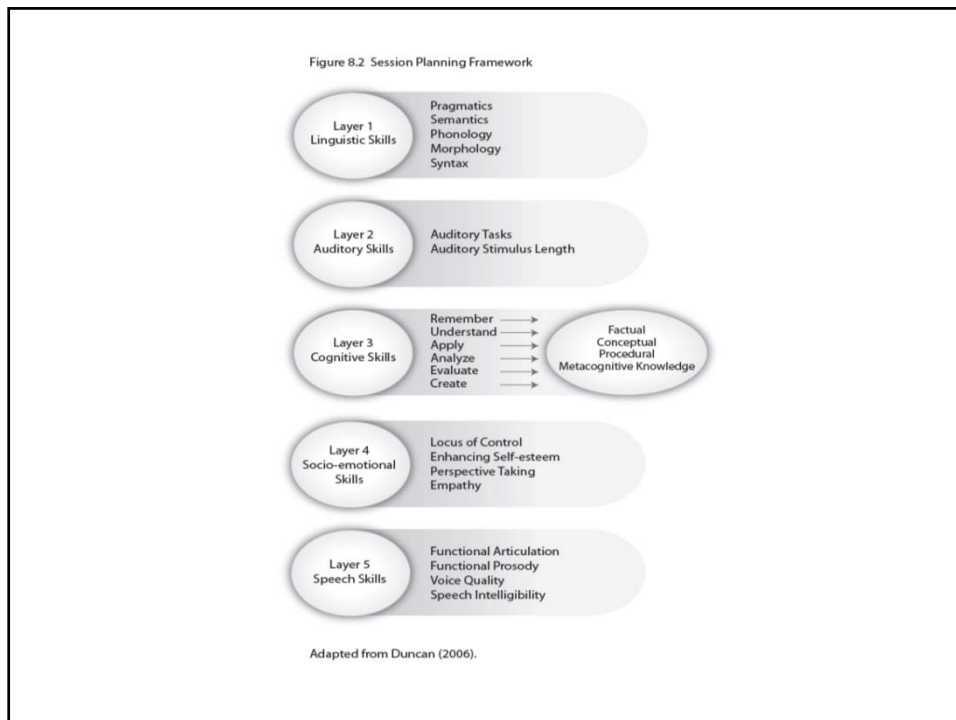
- Neurobiologically adolescence can occur between the ages of 10 and 24 depending on brain function
- For the purpose of this presentation adolescence is limited to secondary school age children

(Duncan, Rhoades, & Fitzpatrick, in press 2012)

Five Layer Framework

- **Four therapeutic/educational contexts**
 - One-on-one A(R) with caregivers
 - One-on-one A(R) without caregivers
 - Group A(R) with D/HH peers
 - Group A(R) with hearing peers
- **Four therapeutic/educational settings**
 - Face-to-face at school
 - Face-to-face at home
 - Telepractice at home
 - Telepractice at agency

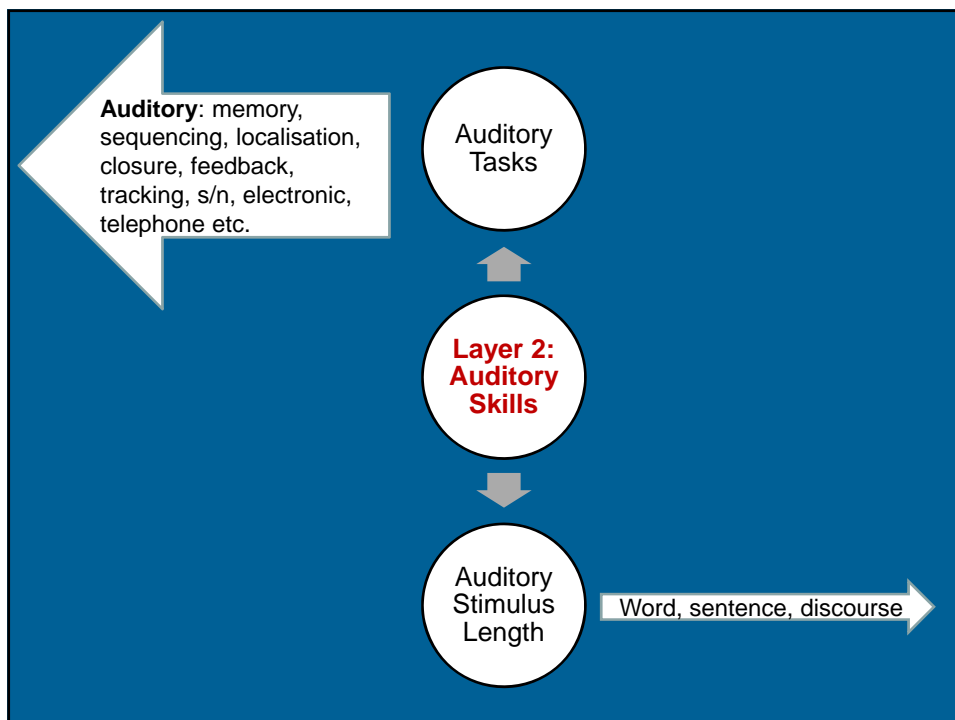
(Duncan, Rhoades, & Fitzpatrick, in press 2012)



Layer One: Linguistic Skills

- Practitioners **observe** peer interactions
 - Provide constructive conversational behavior feedback
 - Co-creates compensatory strategies with the adolescent
 - Practices conversation in **naturalistic contexts**
 - **Videotape** interactions and analyze conversational behavior with the adolescent

(Duncan, Rhoades, & Fitzpatrick, in press 2012)



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Layer Two: Auditory Skills

- Auditory skills includes **task type** and **stimulus length**
 - Based on previously prioritized objectives, an auditory task and stimulus length is chosen that suits the linguistic target from layer one (Duncan, 2006)

(Duncan, Rhoades, & Fitzpatrick, in press 2012)

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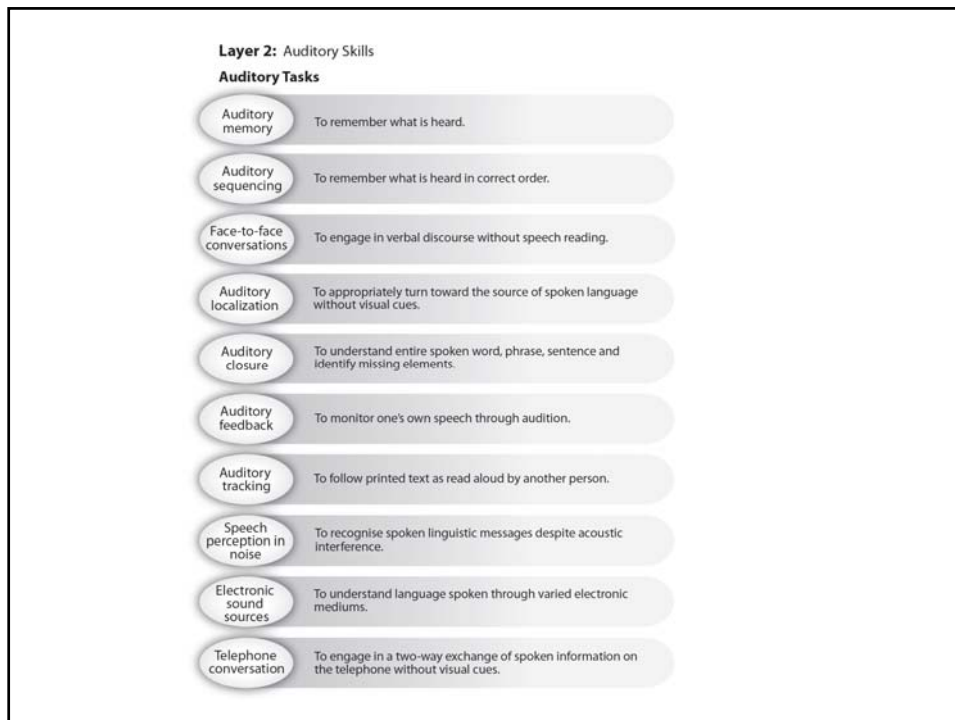
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Layer Two: Auditory Skills

- No clear order of auditory skills complexity
 - Many skills develop simultaneously and are contextually dependent
- Among the reasons for practicing explicit auditory skills include
 - Identify compensatory strategies that can maximize the use of auditory cues in spoken communication
 - Identify ineffective or maladaptive compensatory strategies used by adolescents

(Duncan, Rhoades, & Fitzpatrick, in press 2012)

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Layer Two: Auditory Skills

- Auditory layer incorporates concurrent practice of stimulus lengths-words, sentences, discourse
 - Stimulus, regardless of length, is generally presented from an **open set**
 - Adolescents **repeat what they hear**, performing a predetermined meta-cognitive or meta-linguistic task as per layer three
 - Practitioner chooses the auditory stimulus length that suits the linguistic and auditory targets and applies it to the task (Duncan, 2006)

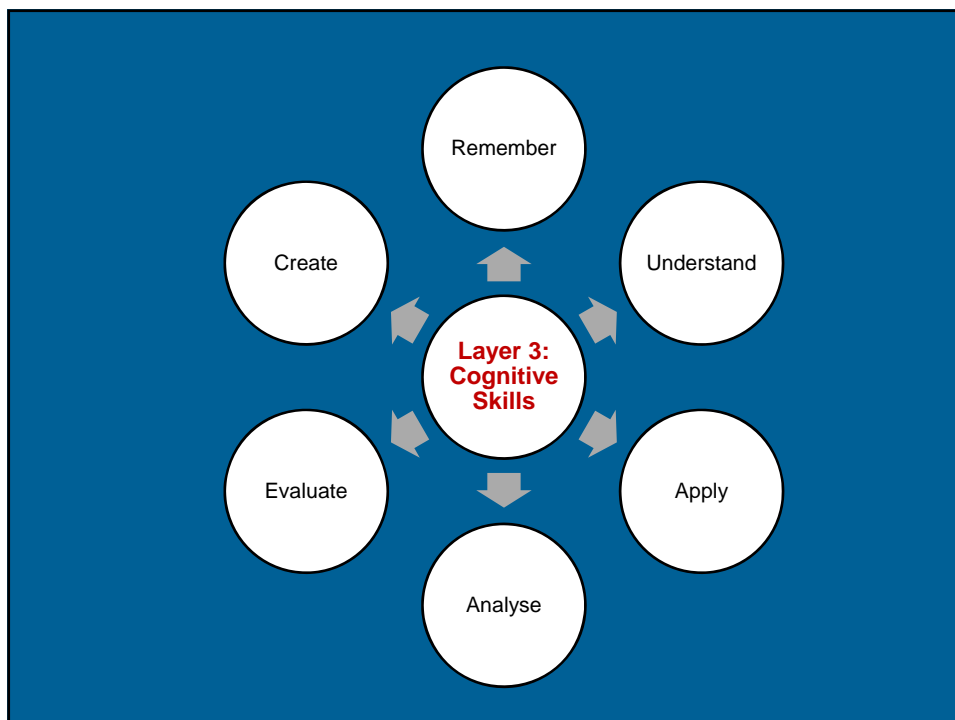
(Duncan, Rhoades, & Fitzpatrick, in press 2012)

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Layer Two: Auditory Skills

- Adolescents **repeat** the stimuli to enable practitioners to make an **informal assessment of functional speech perception** (Duncan, 2006)

(Duncan, Rhoades, & Fitzpatrick, in press 2012)



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Layer Three: Cognitive Skills

- Layer three is the application of cognitive skills based on the revised Bloom's Taxonomy of Cognitive Processes (Anderson & Krathwohl, 2001)
 - Taxonomy can provide practitioners with a **pathway for programming**, implementing, and evaluating targets through the cognitive domain (Duncan, 2006)
 - Practitioners use the taxonomy to ensure that a **range of cognitive tasks** is included in each (re)habilitation session (Duncan, 2006)

(Duncan, Rhoades, & Fitzpatrick, in press 2012)

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Layer Three: Cognitive Skills

- Anderson and Krathwohl's (2001) taxonomy is two-dimensional
 - First dimension consists of six major categories of *cognitive processes dimensions*
 - remember
 - understand
 - apply
 - analyze
 - evaluate
 - create

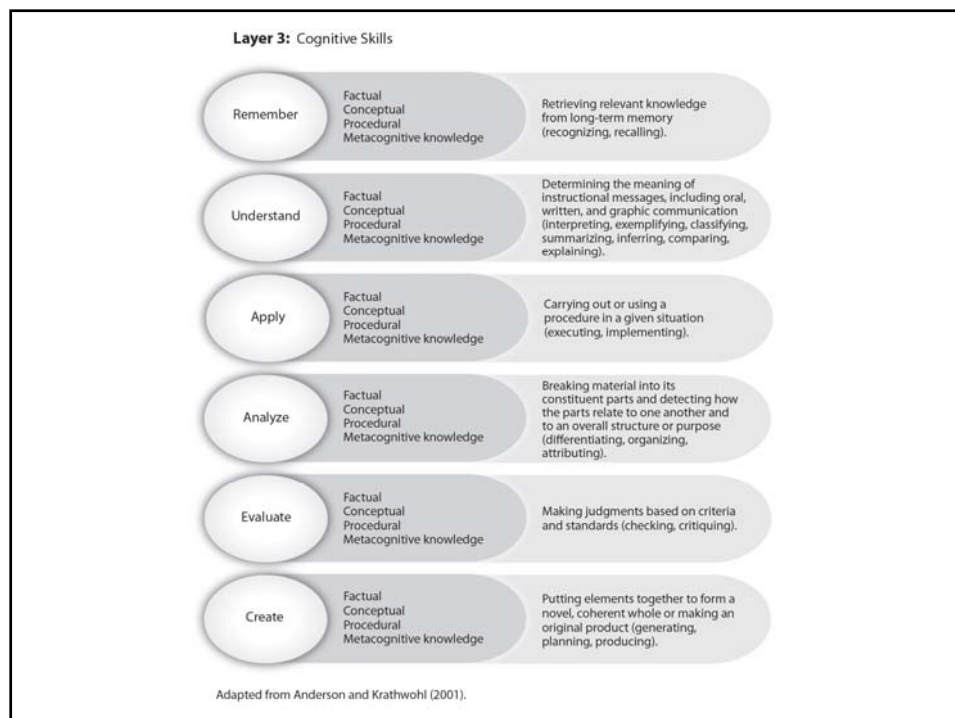
(Duncan, Rhoades, & Fitzpatrick, in press 2012)

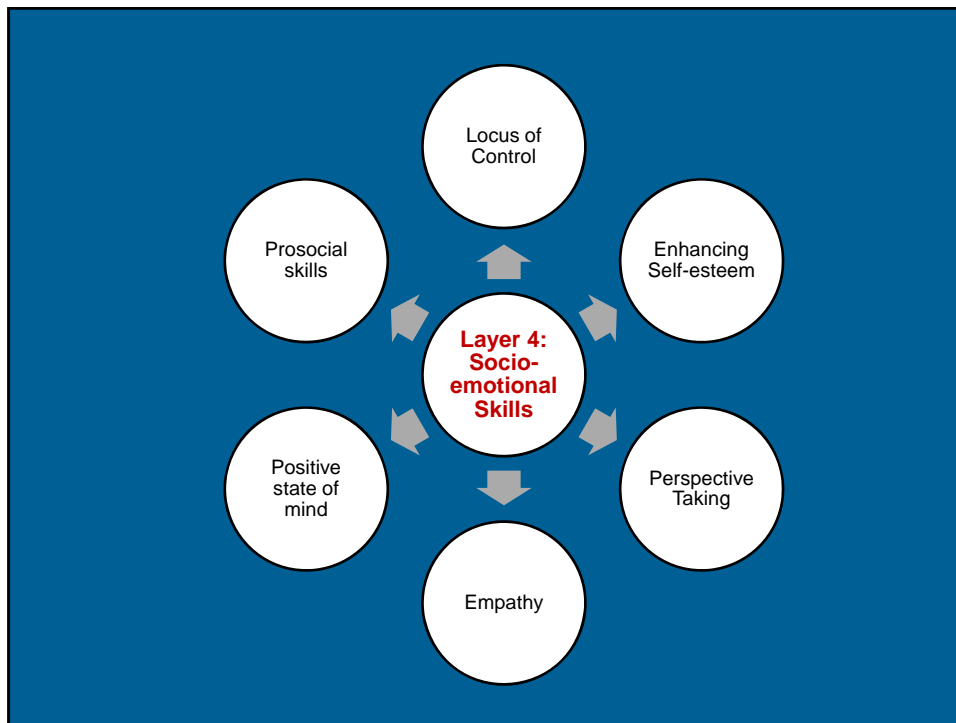
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Layer Three: Cognitive Skills

- The second dimension consists of four types of knowledge
 - factual
 - conceptual
 - procedural
 - metacognitive (Krathwohl, 2001)

(Duncan, Rhoades, & Fitzpatrick, in press 2012)





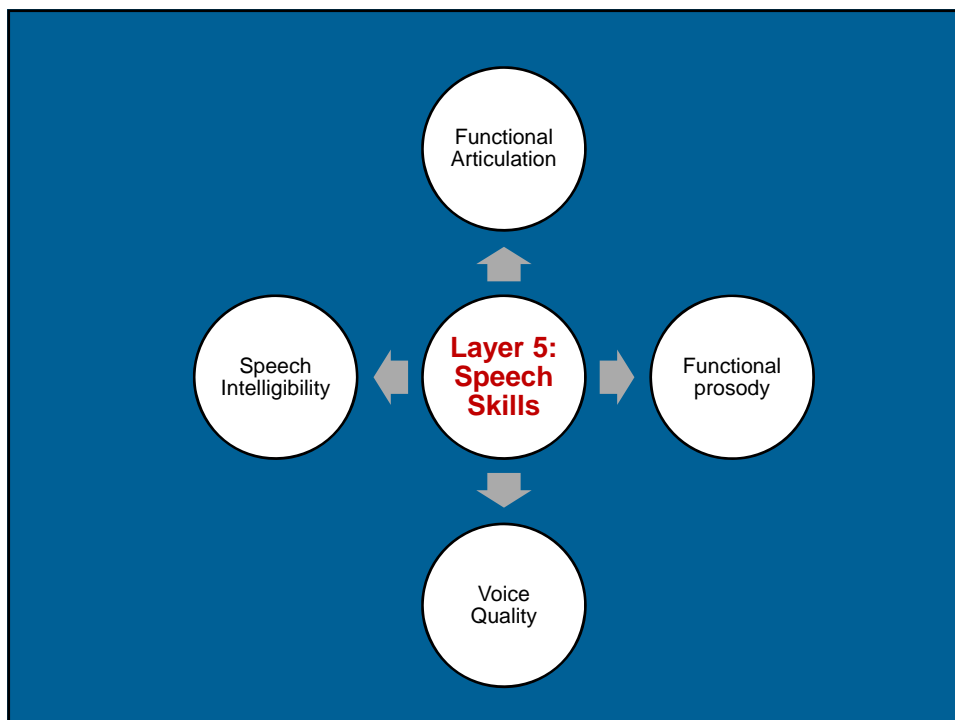
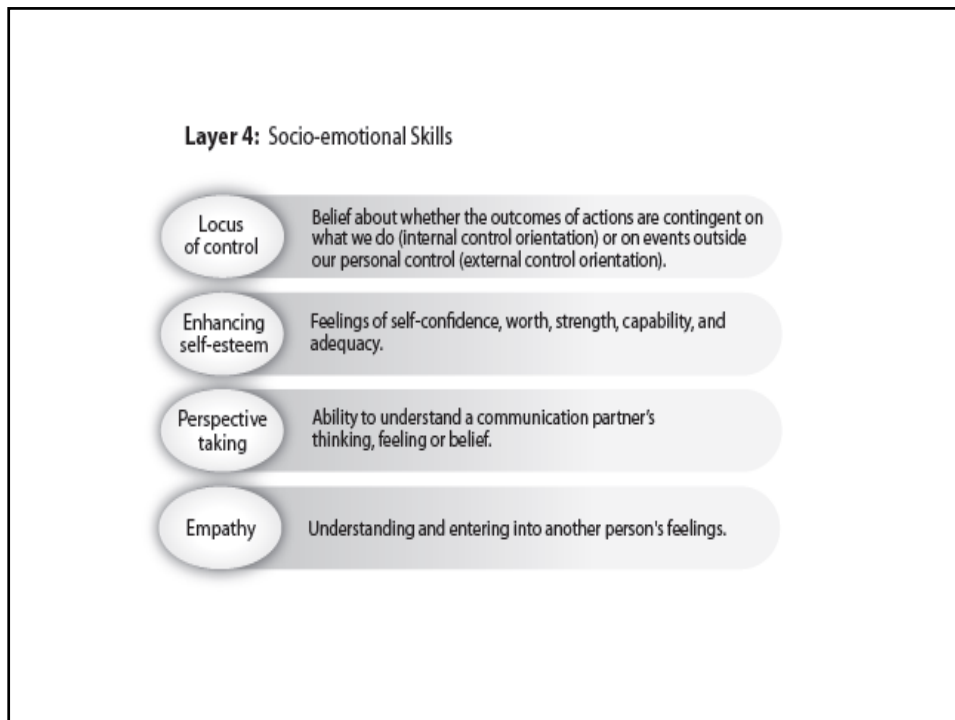
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Layer Four: Socio-emotional Skills

- Fourth layer is the application of socio-emotional skills including
 - prosocial skills
 - locus of control
 - enhancement of self-esteem
 - positive state of mind
 - perspective taking
 - empathy

(Duncan, Rhoades, & Fitzpatrick, in press 2012)

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Layer Five: Speech Skills

- Fifth layer of this framework consists of the application of speech targets to stimuli
 - Inventory of speech errors is made after informal observation and formal speech assessment
 - Students, parents, and practitioners collaborate to prioritize the errors
 - For those adolescents with a high level of speech intelligibility, this layer is unnecessary

(Duncan, Rhoades, & Fitzpatrick, in press 2012)

Layer 5: Speech Skills

Functional articulation

Accurate pronunciation of targeted speech sounds in one's natural spoken language.

Functional prosody

Appropriate use of rhythm, stress, intonation in one's natural spoken language.

Voice quality

Suitable phonatory and resonatory characteristics in one's natural spoken language.

Speech intelligibility

Availability and clarity of one's spoken language to an unfamiliar listener.

STIMULUS

Vocabulary word: chameleon (noun)
Definition: lizard that changes color, somebody who is changeable
Discourse example containing target vocabulary:

- 1) We used to have a slimy chameleon that lived in our garden. He had a long blue tongue and a scaly body. I was scared to death of him.
- 2) In order to be a successful model you need to be like a chameleon when you put on new outfits. You should have many different looks.

STEPS

- 1) Practitioner says vocabulary word; student is to use audition alone and repeat what he hears.
- 2) Practitioner asks student if he knows the meaning of the vocabulary word.
- 3) Practitioner provides student with the word embedded in an example and student repeats the word or phrase.
- 4) Practitioner asks student to attempt to decipher the meaning of the vocabulary word from the discourse context.
- 5) Practitioner repeats the process with the second example.
- 6) Student uses the vocabulary word in a sentence or paragraph.
- 7) Practitioner and student discuss related prefixes, suffixes, root words and etymology.
- 8) Practitioner asks student to provide related synonyms or antonyms.

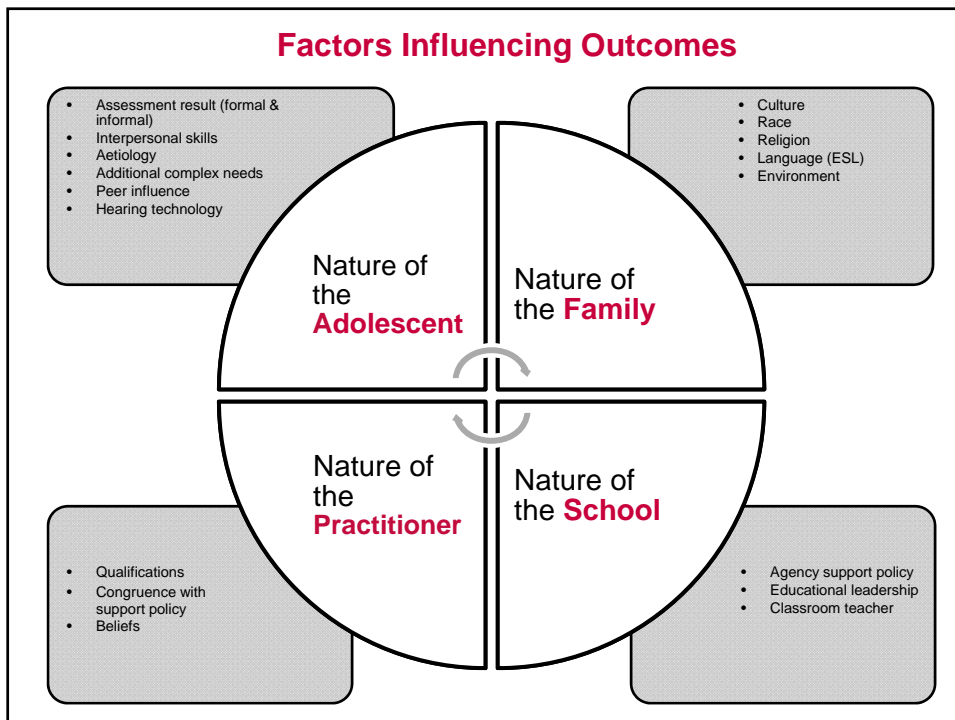
Level one linguistic goals: meaning from context, general vocabulary, complex synonyms and antonyms

Level two auditory goals: sentence and word level, auditory memory

Level three cognitive goals: remember, understand, apply, analyze factual knowledge

Level four socio-emotional goal: perspective taking

Level five speech: monitoring hyper nasality and intelligibility



Reference available upon request

Thank you