

COGS101: DELUSIONS AND DISORDERS OF THE MIND AND BRAIN

1. INTRODUCING DELUSIONS AND DISORDERS OF THE MIND AND BRAIN

Disorders: defined by abnormal performance level (e.g. dyslexia, specific language impairment) or unusual perceptual experience (e.g. synaesthesia, schizophrenia).

Acquired disorder: a cognitive abnormality in someone who acquired a particular skill normally but then lost that ability after brain damage.

Developmental disorder: a cognitive abnormality in someone (often a child) who never acquired a particular skill normally in the first place.

- The cognitive approach to understanding disorders
 - Provides a explanatory link
 - Explains functional terms of brain

Examples	
Biological/neutral	Genetic abnormality, damage to left lobe
Cognitive	Impairment memory, language ability, belief evaluation
Behavioural	Poor word reading, unable to produce long sentences, poor performance or false belief tasks

- How to study cognitive disorders?
 - Group studies
 - Case studies
- Aims of cognitive research
 - Use models of normal cognitive functioning to better understand and explain the patterns of cognitive abnormality
 - Use data from studies of people with abnormal cognitive ability to test, extend or develop theories about abnormal cognitive processing.
 - Use theories and models to cognitive processes to guide assessment and diagnosis, and the development of evaluation and intervention programs

CASE EXAMPLE: Acquired Phonological Dyslexia

- Clive
 - Models of reading propose separate “sounding-out” and “whole word recognition” processes

- Therefore expect to see cases of selective impairment
- Led to identification of cases such as “Clive”

2. DYSLEXIA

Acquired dyslexia: A reading impairment in someone who learned to read normally but then lost that ability after brain damage

Developmental dyslexia: A reading impairment in someone (often a child) who never learned to read normally in the first place

- No child will learn to read without appropriate conditions
- But some children (10-15%) fail despite. These have no obvious neurological or sensory impairment
- Response to intervention – for diagnosis

Phases Of Reading:

Logographic phase (4-5 years)

- Small slight vocabulary of known words
- Often identified by silent graphic features
- Cant attempt unfamiliar words
- As number of words increases, problems occur

Alphabetic phase (5-7 years)

- Acquire 'phonic' knowledge - sound out
- Attempt to pronounce words not seen before
- Reading may feed back to spoken vocabulary

Orthographic phase (7-8+ years)

- Read words as whole units, without sounding out
- Not visual or cue-based like logographic phase
- Rapid recognition of familiar letter strings

Two key process:

1. Sounding out or 'nonlexical' skills
 - Reads new words and nonsense words
 - Mistakes irregular words
2. Whole word or 'lexical' skills
 - Reads familiar words, including irregular
 - Cant read new words or nonsense words

Types of developmental dyslexia:

- **Phonological dyslexia**
 - Nature of problem: poor knowledge of letter-sound rules; poor non-lexical readings
 - Identification in assessment: Difficulty reading non-words and unfamiliar words
 - No: letter-sound rules – Incorrect letter-sound correspondence is used
 - Tendency to leave off or replace the ending of a word
 - Treatment = wealth of phonics training programs
- **Surface dyslexia**
 - Nature of problem: poor word or lexical reading. i.e. small sight vocabulary
 - Key symptom: Difficulty in reading out loud irregular words
 - No: written word store – Use non-lexical routine
 - Sound out non-words and regular words to a component level
 - Lack of ability to form and maintain visual representation of written words
 - Treatment = teach association between spelling and pronunciation – basic flashcards focusing on irregular words
- **Poor comprehenders**
 - Difficulty understanding what they're reading
 - Treatment = oral language training
- **Hyperlexia**
 - Nature of the problem: accuracy in reading allowed of single words and non-words normal for ages but single word reading comprehension is poor
 - Identification in assessment: many words that can be read aloud correctly cannot be understood (neither from print or speech)
 - No: word meaning store
 - Treatment = focus on vocabulary training, hard to treat
- **Letter position dyslexia**
 - Nature of the problem: letters are identified accurately but their position within the word is not
 - Identification in assessment: errors in reading aloud migratable words, such as board – “broad”, nerve – “never”
 - No: letter recognition
 - Have difficulty with, or are unable to differentiate between, words that contain transposed letters. E.g. cloud for could.
 - Treatment = Finger tracking was most successful in reducing errors
- **Attentional dyslexia**
 - Better at reading single letters than reading single words, and are better at reading single words than reading sentences.
- **Letter identification dyslexia**
 - Nature of the problem: some or many single letters cannot be identified
 - Identification in assessment: inaccurate naming of single letters. Poor ability to match a to A.
 - No: letter recognition
 - Treatment letter training programs like “letterland”

Tests and their lexical routes

- Letter sound test – letter sound rules
- Picture recognition – word store meaning
- Door/doar – written word store
- Picture naming tests – Spoken word store
- Non word repetition – Speech sounds
- Cross case matching – Letter recognition
- CC2 non word – nonlexical route // CC2 irregular word – lexical route