

## Developing memory skills for listening and learning

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## Working memory difficulties

Research shows

- Specific impairment in verbal short term memory system
- Phonological loop impairment
- Reduced memory span for lists of items
- Limited central executive capacity – some attention issues
- See Memory book in our Dsii series for details of difficulties and practical ideas to improve and support memory

## Developing memory skills - interventions

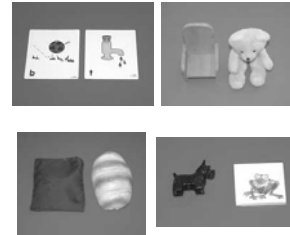
Research findings suggest 3 types of interventions may help to develop working memory:

1. Activities to improve phonological loop function
2. Activities to improve attention and to increase processing capacity
3. Activities to improve remembering of lists of items and associations between items, including categorisation and rehearsal strategies

ALSO Provide supports for remembering: Visual aids, songs, use of context, routine

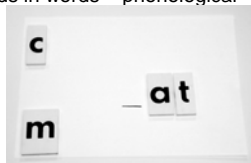
## Activities to improve phonological loop function – pre-school and school

- Improve hearing
- Auditory discrimination of sounds and words
- Auditory bombardment
- Early phonological awareness activities
- Sound and word discrimination games
- Learn letter sounds
- Literacy/reading/spelling



## Activities to improve phonological loop function

- Reducing hearing difficulties
- Auditory discrimination of speech sounds
  - phonic teaching materials for teaching sounds of speech
- Auditory discrimination of words
  - discriminating between rhyming or similar sounding words
- Auditory discrimination for sounds in words – phonological awareness
  - decoding or 'sounding out'
  - spelling



## Activities to improve attention and increase processing capacity - pre-school and school

- sitting still
- choosing
- following instructions
- waiting for turn
- reading book with adult
- teaching new play skills



### Activities / Strategies to develop attention

- |  |   |
|--|---|
| <p>Visual</p> <ul style="list-style-type: none"> <li>• High interest toys and activities</li> <li>• Visual tracking –watching bubbles / moving toys</li> <li>• Object matching</li> <li>• Picture matching</li> </ul> <p>Auditory</p> <ul style="list-style-type: none"> <li>• Nursery rhymes</li> <li>• Listening to music</li> </ul> | <ul style="list-style-type: none"> <li>• stop! games</li> <li>• go! games</li> </ul> <p>General</p> <ul style="list-style-type: none"> <li>• 'Errorless learning' technique - always successful</li> <li>• Visual timeline</li> <li>• Finished box</li> </ul> |
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### Activities to improve attention and increase processing abilities – school age

- Sitting still
- Choosing games (2,3,4,5,6 items) – objects, picture referents, gestures/signs; for activities and at meal times
- Following instructions, one to one, in a group, following teacher direction in whole class
- Waiting for turn
- Reading books with an adult
- Teaching new play/leisure skills

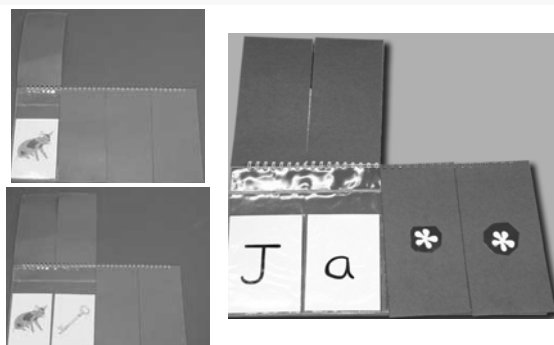
### Play

- Need encouragement to extend play – be shown how to play and have opportunities for practice
- Play indicates understanding of world, shows remembering of how people behave and how events happen
- Development of play
  - Sensory play
  - Exploratory play
  - Cause and effect
  - Pretend play (18 months approx) – build sequences, use 'play scripts'
  - Imaginative play
  - Co-operative play

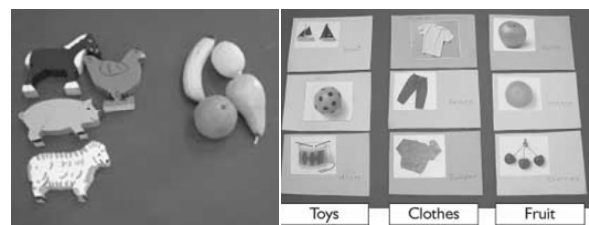
### Activities to improve remembering lists of numbers of items

- Hiding games
- Memory games – 2,3,4,5,6 items
- Rehearsal training (pictures, numbers, words and sentences, spellings)
- Training auditory rehearsal
- Grouping or organisation skills (sorting, oddity task, memory tasks in categories)
- Delivering messages
- Giving instructions
- Recall of activities, stories, songs
- Games e.g. pairs, computer games

### Rehearsal training – spelling example



### Grouping skills, categories



### Other activities

- Delivering messages
- Giving the child instructions to follow
- Recall of activities
- Recall of stories, songs
- Games (e.g. pairs)
- Computer games

ALSO provide visual supports at home and in the classroom – conversation diary, take photo's and discuss

### Supporting working memory in class

Visual supports for:

- Supporting verbal presentation by the teacher
- Understanding the activity
- Supporting responding (writing, speaking) and assessment
- Developing independent work habits (with a picture/word list to follow)
- Increasing attention and participation
- Improving behaviour
- Revision - of the lesson and specific objectives e.g. vocabulary that has been targeted for pupil

### Supporting working memory at home and in the community

- Lists (pictures, words) for a series of activities to promote self help and independence
- Conversation diary
- Pictures of all types to prompt and support
- Using a camera (and ICT equipment)
- Using a daily and weekly calendar to plan for the future, and to discuss the past
- Practicing checking skills and increasing self reliance –watch, clock, calendar, timetable, personal belongings, packing school bag.

### Picture time table



### Written plan of responsibilities – Yr 1

Register	Bryony	Tyler
Pencils/Pens	Sam	Shannon
Chairs	Eloise	Libby
P.E. equipment	Dylan	Hailey
Music	Ewan	Ben
Tidy Tables	Rebecca	Jessica
Book Corner/Case	Brad	Zac
Coats/P.E. bags	Dominic	Harry P

### Evidence for effect of reading on memory

- Readers have significantly better verbal and visual short term memory spans – why?
- Reading, phonics, spelling and writing may improve phonological awareness for sounds in words and more accurate representations in the phonological loop
- Knowledge and storage of printed words may aid storage and retrieval of spoken words
- Supported reading and reading aloud may help memory for longer sequences of information
- Speech clarity is better when reading aloud – may help storage of phonological patterns for words in LTM