

Helping children who have a poor working memory

Research has shown that children with poor working memory skills struggle to achieve age appropriate grades in the classroom.

Children with low working memory often simply forget what they have to do next, leading to failure to complete many learning activities.

Learning progress can be improved dramatically by reducing working memory demands in the classroom.

It is important to ensure that the child can remember what he or she is supposed to be doing.

Instructions

Children's memory for instructions will be improved by using instructions that are as brief and simple as possible. Instructions should be broken down into individual steps where possible.

One effective strategy for improving the child's memory for the task is frequent repetition of instructions.

The use of visual prompts to remind children what they have to do will ease the working memory load.

For tasks that take place over an extended period of time, reminding the child of crucial information for that particular phase of the task rather than repetition of the original instruction is likely to be most useful.

One of the best ways to ensure that the child has not forgotten crucial information is to ask them to repeat it back. Children themselves may have good insight into their working memory failures.

Complex tasks.

In activities that involve the child in both processing and storage of information, working memory demands and hence task failures will be reduced if the processing demands are decreased.

For example, sentence writing can be a source of particular difficulty for all of the children with low working memory. Sentence processing difficulty can be lessened by reducing the linguistic complexity of the sentence. This can be achieved in a variety of ways, such as simplifying the vocabulary, and using common rather than more unusual words. In addition, the syntax of the sentence can be simplified, by encouraging the child to use simple structures such as active subject-verb-object constructions rather than sentences with a complex clausal structure. The sentences can also be reduced in length. A child with poor

working memory skills working with short sentences, relatively familiar words and easy syntactic forms is much more likely to hold in working memory the sentence form and to succeed in a reasonable attempt at writing the sentence.

The child may lose his or her place in a complex activity. This can be reduced by breaking down the tasks into separate steps, and by providing memory support. External memory aids such as useful spellings displayed on the teacher's board or the classroom walls and number lines are widely used in classrooms. Children with poor working memory function often choose not to use such devices, but gravitate instead towards lower level strategies with lower processing requirements. However, their chosen strategies may actually be less efficient and may result in loss of focus on the task in hand.

In order to encourage children's use of memory aids, it may be necessary to give the child regular periods of practice in the use of the aids in the context of simple activities with few working memory demands.

Difficulties in keeping place in complex task structure may also be eased by increasing access to useful spellings, which will also help prevent them losing their place in writing activities. Reducing the processing load and opportunity for error in spelling individual words will increase the child's success in completing the sentence as a whole. Making available spellings of key words on the child's own desk rather than a distant class board may reduce these errors by making the task of locating key information easier and reducing opportunities for distraction. It may also be beneficial to develop ways of marking the child's place in word spellings as a means of reducing place-keeping errors during copying.

Strategies for the child

Children need effective strategies for coping with situations in which they experience working memory failures. Strategies may include encouraging the child to ask for forgotten information where necessary, training in the use of memory aids, and encouragement to continue with complex tasks rather than abandoning them even if some of the steps are not completed due to memory failure. Arming the child with such self-help strategies will promote their development as independent learners able to identify and support their own learning needs.

Activities that may help improve working memory

The activities that help improve working memory involve children remembering sequences of information and then doing something with that information. The tasks should get progressively harder to develop greater capacity in working memory. (Holmes, Gathercole and Dunning 2009)

Examples would be hearing a sequence of letters or numbers and repeating them backwards; watching a sequence of lights on a screen and then copying it; listening to sentences which increase in length and identifying rhyming words in them.

There are specifically designed computer programmes available commercially e.g. Jungle Memory, which provide such activities.

Reference: Susan Gathercole and Tracey Alloway – Working memory and classroom learning

Ann Forrester, Speech & Language Therapy – July 2016