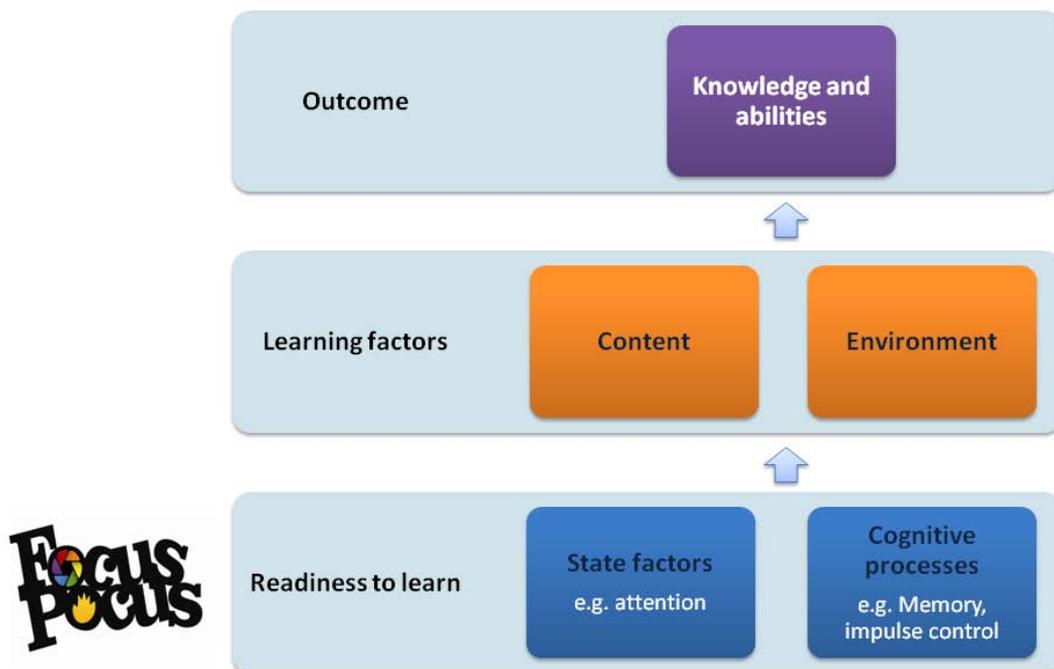


## Focus Pocus research background

While Focus Pocus was initially developed for children with ADHD, the principles behind it apply to all children. Focus Pocus is designed to assist with a broad range of educational aims by targeting the “readiness to learn”, i.e. the core underlying processes that allow a child to focus their attention, keep information in memory and control their behaviour, as shown on the lower level of the graph below:



**Evidence in support of impulse control and working memory training:** Practice at working memory has been shown to result in behavioural change, in children with ADHD<sup>[1, 2]</sup> and also in adults trying to reduce alcohol intake<sup>[3]</sup>. Similar results have been shown for impulse control training, in a variety of situations including reducing high calorie food<sup>[4, 5]</sup> and alcohol<sup>[6]</sup> intake, as well as improving baseball hitting accuracy<sup>[7]</sup>. Combined working memory and impulse-control training has been shown to reduce ADHD symptom frequency<sup>[8, 9]</sup>, and to a lesser extent improve behaviour in non-ADHD children<sup>[8, 10]</sup>. Focus Pocus includes the combined approach, with a Patent pending<sup>[11]</sup> on this training mechanism.

**Evidence in support of state control training:** A recent meta-analysis of many studies examining neurotraining (or state control training) for ADHD showed that training targeting the theta/beta EEG bands can result in clinically meaningful large reductions in inattentive and impulsive symptoms and moderate reductions in hyperactive symptoms<sup>[12]</sup>. Focus Pocus utilises this type of attention targeted training, as well relaxation and “Zen” (combined focus and relaxation) training.



Using this range of state control tasks assists the child to develop awareness and control of their state broadly, rather than just one aspect of it, and for the training effects to generalise outside of the training situation.

**Evidence for validity of EEG from Mindset/MindWave:** A case study has shown that the EEG data obtained using a headset system shows sensitivity to variations in psychological state, such as higher proportions of attention (mainly beta activity) during cognitively demanding periods (e.g. in class) compared to between-class breaks<sup>[13]</sup>. EEG recorded by the Thinkgear circuitry shows good concurrent validity when compared to a research grade EEG system, and when used by children it shows the expected changes in EEG band power for different psychological states; for example, eyes-open compared to eyes-closed or an attention task<sup>[14]</sup>.

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