Improving children’s attention with focus training and meditation

Today, people have access to an unprecedented amount of information through their smartphones, tablets, portable computers, and other electronic devices. While digital technologies allow people to instantly learn about different topics and communicate with others around the world, the widespread use of electronic devices and the increasingly sophisticated technology has considerably reduced the appeal of exponential and in-person learning.

Over the past decade or so, many educators have observed a decline in the performance and concentration of children in both elementary and secondary school. This decline has often been linked to a reduction in attention, which could in turn be associated with the widespread use of digital technology. Many researchers have thus been conducting studies aimed at better understanding the notion of attention and its impact on children’s academic performance, while also trying to identify strategies that could improve attention over time.

Drs Kang-Ming Chang and Yi-Jung Lai, in collaboration with colleagues at Asia University and at other institutes in Taiwan, have been trying to identify practices that could improve the attention of elementary school students. In one of their most recent studies, they specifically examined the effects of focus training and meditation on children’s ability to concentrate for long periods of time.

UNDERSTANDING AND MEASURING ATTENTION

The Clinical Model of Attention, introduced by Sihlberg and Matear back in 1987, divides attention into five distinct dimensions: focused attention, sustained attention, selective attention, alternating attention, and divided attention. The term focused attention refers to a person’s ability to promptly respond to specific sensory stimuli in their surroundings.

Sustained attention is what allows people to consistently respond to stimuli during a prolonged or repetitive activity. The term selective attention, on the other hand, refers to a person’s ability to direct his/ her behaviour or cognitive efforts towards a specific task or stimulus, even in the presence of distractions, whether external (e.g., sounds, movements, environmental changes or stimuli such as external distractions, etc.) or internal (e.g., worries, thoughts, etc.). Alternating attention is the ability to change the focus of one’s attention, rapidly shifting between tasks that require different cognitive abilities. Finally, divided attention is what allows people to simultaneously focus on multiple tasks.

Over the years, researchers have devised different instruments and questionnaires that can be used to assess these different types of attention. In their past research, Chang, Lai and colleagues measured the attention of participants using a variety of tools, ranging from attention scale questionnaires to wearable devices and eye-tracking tools.

FOCUS TRAINING TO IMPROVE THE ATTENTION OF ELEMENTARY SCHOOL CHILDREN

In their recent study, Chang and Lai evaluated the effectiveness of a strategy for increasing people’s attention that they refer to as fixation focus training, by specifically using it to improve the attention of elementary school students.

To do this, they asked groups of 11- and 12-year-old children to focus their attention on a specific point on the wall in front of them for approximately 20 minutes, as they followed specific instructions. Essentially, the children were asked to perform certain physical movements while paying particular attention to different parts of their body and simultaneously concentrating on the same point on the wall. For instance, they were asked to throw both of their hands backwards while standing on their toes and slightly tilting their head backwards, all this as they focused their attention on their heart space.

The researchers asked the children to perform a series of these movements, while focusing their attention on different areas of the body.

Chang and Lai investigated the effects of focus training and meditation on children’s attention.

More specifically, the researchers found that the total attention mean DIFF value (defined as the post-test results minus the pre-test results of children in the experimental group was 27.20, which is significantly (p < 0.05) higher than the 18.92 mean DIFF value observed in the control group. The mean DIFF value for focused attention was also significantly (p < 0.05) higher in the experimental group than in the control group (18.07 and 5.24, respectively), and so was the selective attention mean DIFF value (p< 0.01 with values of 20.38 and 8.32, respectively).

In other words, after the training children were more able to promptly respond to specific stimuli in their surroundings and they were better at focusing their attention on a specific stimulus even in the presence of external distractions (e.g., noise) or internal (i.e., thoughts, worries, etc.).

Moreover, 54.1% of the children reported improvements in their concentration during school lessons, 29.1% an enhanced ability to sleep at night, 8.4% said they felt more relaxed, 4.2% said their stress had reduced and 4.2% said their chest pain was alleviated. The focus training protocol used by Chang and Lai partly resembles mindfulness meditation techniques, which were found to have numerous beneficial effects and are employed in numerous therapeutic settings.

The results gathered by Chang and Lai highlights the potential of the focus training they developed. However, as they evaluated the attention of students using a questionnaire primarily used in Taiwan, they hope to ultimately repeat their study utilizing different instruments and questionnaires to assess changes in attention, as this would help them to confirm their findings and improve their validity.
ADDITtional Research
Investigating the Effects of Meditation on Adults
In addition to exploring the effects of focus training and meditation on children's attention, Drs Chang and Lai carried out other studies assessing the effects of meditation practice on adults.

For instance, they organised two face-to-face and video-based Heart Premiere meditation courses for both experienced and inexperienced adult meditators, led by a Chan master. Chan is a Chinese school of Mahayana Buddhism and the Heart practice specifically asks meditators to focus their attention on material points in the body. Interestingly, they found that both the heart rate and biological heart rate variability age of participants decreased significantly after they completed the meditation courses, regardless of whether they attended sessions in person or via video and even if they had no prior experience with meditation.

In another study, Chang and Lai used eye tracking technology to assess the ability of 306 adult participants to focus their gaze on a specific point in space (at the centre of three concentric circles) for one minute. Interestingly, they found that those who could focus their gaze better had lower systolic blood pressure and reported sleeping better at night. As gaze concentration is a crucial aspect of Heart Chan meditation, these findings hint at additional health benefits of fixation focus training.

The researchers also conducted a study aimed at evaluating the physical stillness of adults as they practiced Chan Ding meditation, which asks people to focus on the ten energy points or 'mailuns' of Buddhism, known as 'mailuns'. Physical stillness was evaluated using accelerometers that participants wore on their arms and chest. Interestingly, the researchers observed that more experienced meditators were able to remain still for longer periods of time.

The Potential of Focus Training and Meditation Practices to Improve Attention in the Digital Era
Overall, the results gathered by Chang, Lai and their collaborators over the past few years highlight the possible effects of consistent Chan meditation on concentration, heart rate variability, sleep quality, relaxation, and general wellbeing. Their most recent study specifically explored the impact of weekly meditation on the concentration of elementary school children. Their findings suggest that a combination of meditation and dynamic attention training could greatly benefit children, as it could help them to train their brain to focus their attention on tasks, lessons and other stimuli for longer periods of time.

In the future, these results could pave the way for further studies aimed at investigating the effects of meditation practices on children's concentration and academic performance. In addition, the work of Chang and Lai could inspire more schools and educators worldwide to introduce daily or weekly focus training and meditation sessions, as a means to improve the attention of students and enhance their learning over time.

These results could pave the way for further studies aimed at investigating the effects of meditation practices on children's concentration and academic performance.

Dr Kang-Ming Chang's research is devoted to biomedical signal processing and AI. His recent interests include attention, meditation and AI in medicine.

Dr Yi-Jung Lai's research is concerned with children's health and learning through focus and meditation training.

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Collaborators
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References


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