

Memory self-efficacy and the use of the BrainTrainerPlus™

Effects of the BrainTrainerPlus™ on memory self-efficacy in the elderly

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Beliefs about one's capacity to use memory effectively, Memory Self-Efficacy or MSE, has an important role in research of cognitive aging, because there is a correlation between age and MSE (Welch & West, 1995). There are multiple causes of the fact that elderly people have a lower MSE than younger people (Hertzog, Hultsch & Dixon, 1989). Nevertheless, it is possible to increase MSE (McDougall, 2001). Sources that can increase MSE are positive feedback and mastery experiences. This study investigates the effects of the BrainTrainerPlus™ as an intervention for MSE in the elderly. The BrainTrainerPlus™ provides positive feedback and adjusts the level to every single user, so there is a high probability of mastery experiences.

Participants were recruited in nursing homes and day care centers in Deventer and Apeldoorn. 53 participants took part in this study; they were divided over an experimental group (N = 30) and a control group (N = 23). Both groups have had a training period of five weeks in which they performed the 'Daily Training' on the BrainTrainerPlus™ fifteen times. The experimental condition received positive feedback on their answers; the control group didn't receive any feedback.

MSE was measured with the Metamemory in Adulthood Questionnaire (MIA). The Geriatric Depression Scale (GDS) was used to measure the mood. For quality of life, the MOS Short-form Health Status Survey (SF-36) was used and cognitive functioning was measured with the Cambridge Cognitive Examination (CAMCOG). These tests were administered at three different moments: a pre-test, a test directly after the training period and a post-test three weeks after finishing the training period.

In the experimental condition MSE improved significantly directly after the training period. Furthermore, there is a decrease of depressive symptoms and cognitive functioning was improved. In the control group there was no increase of MSE, but there was an improvement of cognitive functioning. For the entire research population there are significant improvements of MSE, mood and cognitive functioning directly after the training period. In the follow-up period, memory functioning is improved when compared to both the test directly after the training period. In the same period, the general health evaluation had decreased.

The BrainTrainerPlus™ appears to have positive effects on MSE, mood and cognitive functioning. This provides evidence for the existence of the presumed sensitivity to positive feedback in this target group. This also gives indirect evidence for the effectiveness of the BrainTrainerPlus™. Hereby, the BrainTrainerPlus™ proved in this study its usefulness in the care of the elderly.

Cambridge research study

Research by Medical Research Council (MRC) Cognition and Brain Sciences Unit in Cambridge

A) In one group, the tasks focused on were reasoning, planning and problem-solving abilities — skills associated with general intelligence.

B) A second group was trained on mental functions targeted by commercial brain training programs — short-term memory, attention, visuospatial abilities and maths.

C) A third group, the control subjects, simply used the Internet to find answers to obscure questions.

11,430 volunteers from 18 to 60 completed the study. None of the groups showed any improvement on cognitive abilities. Adrian Owen, who led the study said: “I think the expectation that practising a broad range of cognitive tasks to get yourself smarter, is completely unsupported!” Owen concedes that his findings don’t necessarily mean that training young children or elderly patients is pointless, he says ... “the evidence is not strong, and someone needs to go and test it”. “And someone needs to go and test it”, so we did!

Flow (psychology)

Flow is the mental state of operation in which a person performing an activity is fully immersed in a feeling of energized focus, full involvement, and enjoyment in the process of the activity. In essence, flow is characterized by complete absorption in what one does. Proposed by Mihály Csíkszentmihályi, this positive psychology concept has been widely referenced across a variety of fields.

According to Csikszentmihalyi, flow is completely focused motivation. It is a single-minded immersion and represents perhaps the ultimate experience in harnessing the emotions in the service of performing and learning. In flow, the emotions are not just contained and channeled, but positive, energized, and aligned with the task at hand. The hallmark of flow is a feeling of spontaneous joy, even rapture, while performing a task although flow is also described as a deep focus on nothing but the activity – not even oneself or one’s emotions.

Flow has many of the same characteristics as (the positive aspects of) hyperfocus. However, hyperfocus is not always described in such universally glowing terms. For examples, some cases of spending “too much” time playing video games, or of getting side-tracked and pleurably absorbed by one aspect of an assignment or task to the detriment of the assignment in general. In some cases, hyperfocus can “grab” a person, perhaps causing him or her to appear unfocused or to start several projects, but complete few.

Nakamura and Csíkszentmihályi identify the following six factors as encompassing an experience of flow.

- intense and focused concentration on the present moment
- merging of action and awareness

- a loss of reflective self-consciousness
- a sense of personal control or agency over the situation or activity
- a distortion of temporal experience, one's subjective experience of time is altered
- experience of the activity as intrinsically rewarding, also referred to as autotelic experience
- Those aspects can appear independently of each other, but only in combination do they constitute a so-called flow experience.