The beneficial aspects of mindfulness for students of computer engineering

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Mindfulness session in the University of Seville. Credit: University of Seville

A group of University of Seville researchers has shown that the practice of mindfulness increases the capacity to solve computer-engineering problems. The authors of the study used data to back the benefits of a

technique that is now used in school and universities, as well as in tech companies like Google and Intel.

Mindfulness is rooted in being fully aware. One of the methods for achieving this state of awareness in daily life is meditation, which is referred to as formal mindfulness. This consists of taking time out for deliberate stillness in a calm place and in total silence. During this time, the objective is to concentrate on one thing, typically breathing.

The research, carried out by the teachers Beatriz Bernárdez, Amador Durán, José Antonio Parejo and Antonio Ruiz, came about because Bernárdez practices mindfulness and noticed a considerable improvement in her ability to solve problems. There have been previous neurological studies showing that meditation stimulates activity in certain areas of the brain connected to aspects of mental activity, such as compassion, attention and concentration. In the study, two variables were evaluated: effectiveness (how well the students performed a task) and efficiency (how quickly they did the correct part). These variables were measured twice, before and after the mindfulness sessions, in both groups, experimental and control. In both cases, the students were faced with conceptual modelling exercises, which are normally quite difficult, requiring analytical skills, reading comprehension and the capacity to classify and organise concepts.

Since 2014, the authors carried out three experiments to test their theory. The first lasted four weeks, and the next two lasted six. During this time, a group of students took part in mindfulness sessions that lasted between 10 and 12 minutes four times a week. In each session, they first performed a mindfulness body scan. Then the students focused their attention on their breathing, ignoring any other thoughts and sensations. Their performance was compared with a control group that did not take part in the mindfulness sessions.

In the three experiments carried out so far, the students who practised mindfulness were significantly more efficient than the control subjects. Although only subtle improvements were observed from the data of each individual experiment, the combined data reveal that the students who practise mindfulness were significantly more effective. This was attributed to the size of the sample, which was insufficient to observe improvements in individual experiments.

The researchers now intend to replicate their experiment in other universities to be able to generalise their findings. They also hope to start empirical studies at software development companies and are in conversation with some important companies in this sector.

More information: Beatriz Bernárdez et al, An experimental replication on the effect of the practice of mindfulness in conceptual modeling performance, *Journal of Systems and Software* (2016). DOI: 10.1016/j.jss.2016.06.104

Provided by University of Seville

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