Can software tools help students avoid distraction during digital learning?

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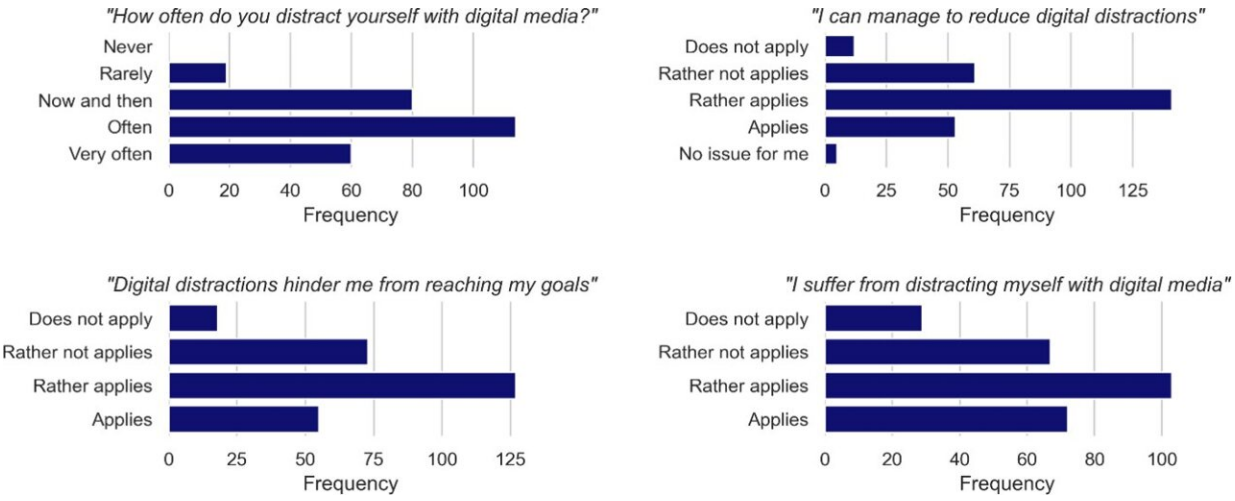

Distribution of responses to the questions regarding the extent of digital distractions during learning. Credit: *Education and Information Technologies* (2023). DOI: 10.1007/s10639-023-12198-2

Those who learn digitally are quickly distracted. This is because the devices used offer many opportunities to pass the time in other ways. Meanwhile, a large number of software applications have been designed to help you stay focused. But how are these self-control tools used and how helpful are they perceived to be?

A new study by the DIPF | Leibniz Institute for Research and Information in Education has investigated this with 273 higher education

students. The findings indicate that these tools are not a universal solution; they require individualized settings and an understanding of the program's capabilities by users. The work is published in the journal *Education and Information Technologies*.

Do I continue watching the video tutorial or do I prefer a music clip? Do I follow the online lecture to the end or do I play another round of my favorite game? Anyone who learns digitally is likely familiar with such temptations. This is also confirmed by the new study. "There was no one among the study participants who had never been distracted from digital learning. Around 64% even stated that it happened to them often or very often," explains lead author and researcher Daniel Biedermann from the DIPF.

Self-control tools could help students to stay on track. They are widely available and are now pre-installed on most devices. For example, they can block websites or show users how long they have spent on applications that are not used for learning.

But how well known are these tools and their functions, and how are they used? The results varied depending on the feature and user group. What stood out, however, was that although 175 participants stated that digital distractions caused them serious problems, about 49% of them were not using any self-control programs at the time of the survey. About 7% of these 175 respondents were even completely unaware of the tools.

The effectiveness of these programs was also perceived in mixed ways; while none of their functions were deemed completely unhelpful, the mere visualization of usage time was rated as the least beneficial. The features most appreciated were those that limit or adjust distractions from websites. Daniel Biedermann adds, "Whether such a tool is rated as helpful also depends on how often users distract themselves. People with a habitually higher level of distraction need more restrictive limitations."

Background and implications

The study revealed several reasons why respondents either do not use the tools frequently or find them inconsistently helpful. One key aspect: Platforms like YouTube serve educational and leisure purposes, making complete blocking impractical.

The study participants also rated the handling of the programs for self-control as too inconvenient in some cases—for example, they often have to be specifically switched on and off. In addition, users are not always motivated to use the tools or only fall back on them during stressful exam phases. This makes it difficult to fundamentally change obstructive behavior.

The findings suggest several implications. Improved functionalities of self-control tools such as automated activation could help. On platforms such as YouTube, it could make sense to mark learning and leisure content so that these platforms do not have to be blocked completely. Improved information and training on how to use the tools would also appear to be helpful, as would further research into how people can be motivated to use them.

Biedermann states, "Overall, it is clear that the use of the programs should be tailored to the individual user and their situation. As a first step, it would make sense to draw attention to the wide variety of tools that already exist and their setting options."

The study

A team from several DIPF departments was involved in the study. Among other things, the researchers deal with issues of digital education and individualized learning support. For the online survey study, the

research team used data from a total of 273 higher education students—mostly from Germany, but also from some other countries.

In the questionnaires the respondents provided information on their distraction behavior, their media consumption and the helpfulness of the self-control tools. The questionnaires contained quantitative survey instruments such as classifications on scales, but also free text answers. The researchers calculated mean values and correlations for the statistical data.

The scientists point out that there are also limitations to the study. For example, the participants predominantly spoke German or English, which means that culturally different usage behaviors cannot be examined precisely. In addition, variables such as helpfulness could be surveyed in longer developmental contexts and in more precise gradations. However, this would require further, long-term research.

More information: Daniel Biedermann et al, Use of digital self-control tools in higher education—a survey study, *Education and Information Technologies* (2023). DOI: 10.1007/s10639-023-12198-2

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