

# Study shows greater emotional exhaustion among math teachers during the COVID-19 pandemic

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In a longitudinal study, researchers were able to examine the significance of the COVID-19 pandemic on the professional well-being of math teachers. On a scale of 1 to 4, the mean emotional exhaustion of teachers

increased from 1.89 in 2019 to 2.41 in 2021. At the same time, enthusiasm for teaching decreased on average, from 3.52 in 2019 to 3.21 in 2021.

These tendencies could be cushioned by good technical equipment at the school, among other things, and individual personality also played a role in how affected they were.

The study, published in the *Journal of Psychology (Zeitschrift für Psychologie)*, was conducted by Prof. Dr. Thamar Voss from the Department of Educational Sciences at the University of Freiburg together with Prof. Dr. Uta Klusmann from the Leibniz Institute for Science and Mathematics Education in Kiel, Nikolaus Bönke from the University of Freiburg, Prof. Dr. Dirk Richter from the University of Potsdam, and Prof. Dr. Mareike Kunter from the University of Frankfurt.

## **Study part of a longitudinal survey of math teachers as of their teacher training program**

The authors analyzed data from six surveys that took place between 2007 and 2022. Math teachers from different school types were included in the [survey](#).

The first two surveys took place in 2007 and 2008 during their [teacher training](#), two more in 2010 and 2019, and the last two during the COVID-19 pandemic in the summer of 2021 and the spring of 2022.

In the surveys, teachers were presented with statements based on a scale of 1 to 4. They were asked about their enthusiasm for teaching (for example, "I teach with enthusiasm;" "I always enjoy teaching students new things") and emotional exhaustion (for example, "I often feel

exhausted at work"; "I feel overworked by my job in general").

In the first survey in 2007, math teachers also answered questions on the [personality traits](#) including neuroticism, extroversion, openness to experience, agreeableness, and conscientiousness. In 2021, during the pandemic, they additionally provided information on the technical equipment of their respective schools, support from principals, cooperation with colleagues, support from parents, and current difficulties in dealing with students.

Not all of the initially participating teachers answered all of the questionnaires over the entire duration of the survey. While the sample consisted of 856 teachers in training in 2007, 214 teachers still took part in the survey in 2022—most of them dropped out after the end of their training program in 2010.

However, the composition of the group remained more or less the same in terms of socio-demographic variables, for example. Accordingly, the researchers used the 2007 data as baseline values and were able to replace missing values using modern statistical estimation techniques.

The researchers were able to show that the pandemic was accompanied by major losses in teachers' professional well-being. During the pandemic, teachers in 2021 were on average more emotionally exhausted and less enthusiastic than in previous years, according to their own statements. Due to the long observation period, it is clear that respondents' perceived stress during the pandemic years exceeded normal levels from previous years. Teachers also reported greater exhaustion than during their equally challenging first years on the job. "The much-cited 'reality shock' also emerges in our data, but compared to the 'Corona shock,' the effect is much smaller. That was surprising for us," says Voss.

## Differences depending on the work environment and personality type of the respondents

Although the mean values of the measured emotions follow a clear trend, the courses vary significantly between teachers on an individual basis. It can be seen that the impact of the pandemic depends on the specific work environment as well as on personality traits.

Teachers whose schools had good technical equipment reported less emotional exhaustion during the pandemic. At the same time, enthusiasm for teaching decreased and exhaustion increased when there were many difficulties in dealing with students, so that, for example, frequent admonishments were necessary during (digital) lessons.

Teachers who were particularly open to new things due to their personality showed a smaller increase in emotional exhaustion during the pandemic. In contrast, strongly extroverted teachers were more affected by a negative change in well-being.

"As the data from our study show, in 2022 only a slight recovery effect was observed in teachers' professional well-being after the [pandemic](#)-related school closures. Therefore, support from policy makers or school administrators is still needed now," Voss emphasizes. The researchers will continue the study to further investigate the question of recovery.

**More information:** Tamar Voss et al, Teachers' Emotional Exhaustion and Teaching Enthusiasm Before Versus During the COVID-19 Pandemic, *Zeitschrift für Psychologie* (2023). [DOI: 10.1027/2151-2604/a000520](https://doi.org/10.1027/2151-2604/a000520)

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