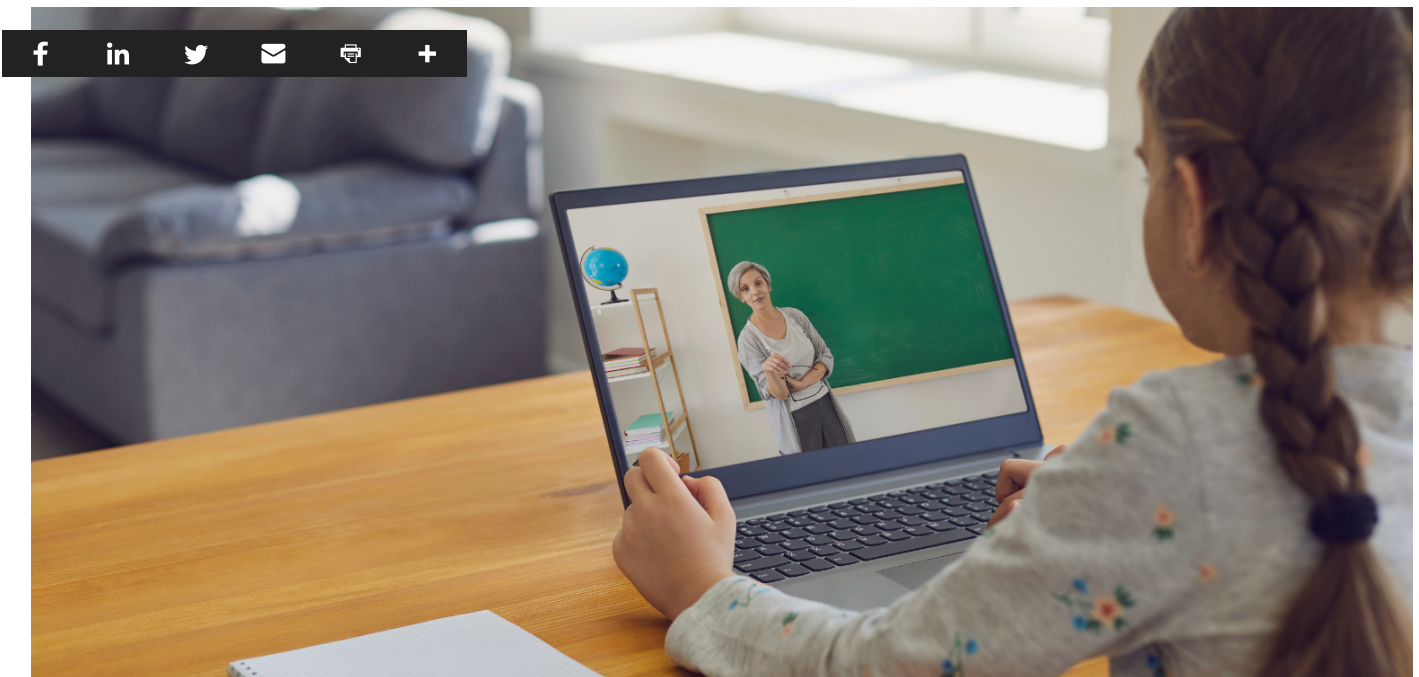


The effects of remote learning on the progress of students before and during the pandemic

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Ever since March 2020, the Covid-19 pandemic has forced schools to replace in-person teaching with remote means of learning. These unprecedented circumstances are, for the evangelists of technology, ideal for the complete transformation of the regular teaching system, favouring the concept of the virtual school and the development of 21st century competences, the rising personalisation of student learning paths and truly differentiated education.



Ever since March 2020, the Covid-19 pandemic has forced schools to replace in-person teaching with remote means of learning. These unprecedented circumstances are, for the evangelists of technology, ideal for the complete transformation of the regular teaching system, favouring the concept of the virtual school and the development of 21st century competences, the rising personalisation of student learning paths and truly differentiated education.

This highly ideological discourse nevertheless ignores the very positive and extremely well justified effects of teachers on students while also attributing technologies with gigantic powers that have not yet been observed. According to some, distance learning does represent the method to be adopted in the future and entirely replacing the physical school.

Virtual schools have now existed widely in the United States since the turn of the century. What then do we actually know about the returns for students in a non-pandemic context?

The virtual school prior to the pandemic

Various studies have compared the results for students undertaking exclusively distance learning means of education with those who attend traditional schools, thus, in-person classes.

In 2017, June Ahn and Andrew McEachin demonstrated the **negative effects of virtual schools on the learning of children** across primary and secondary schooling. These negative effects reflected in the results both for mathematics (standard deviation of 0.41 below the results for the weakest students and down 0.30 on the results for the strongest students) and also for reading (with the weakest students registering a standard deviation of 0.26 worse than the average and falling 0.10 short in the case of the best students).

Two years earlier, the University of Stanford Research Centre into Education Results compared the progress made by 158 virtual schools belonging to 17 American states and the District of Columbia with students attending traditional schools. This concluded that **students in virtual schools obtain lower results in mathematics and reading than students in traditional schools** (standard deviations of -0.10 to -0.39).

Already into 2020, Carycruz Bueno carried out analysis of the performance of over 100 000 students attending virtual schools in the American state of Georgia in the period between 2007 and 2016. According to this researcher, "attending a virtual school on a full time basis results in a statistically significant reduction of between 0.1 and 0.4 in the standard deviation for the subjects of English, mathematics, sciences and social studies among students in primary schools as well as among students attending middle and secondary schools." These research findings also highlight how "full time attendance of a virtual school interlinks with a 10% fall in the probability of obtaining a diploma for completing secondary school."

Remaining in the United States, the team headed by Brian R. Fitzpatrick analysed the academic results of students between the 3rd and 8th years of education in the state of Indiana over a seven-year period (2010-2017). The analysis focused on around 2,000 white students from better-off backgrounds and with generally high academic results prior to beginning virtual school. The effects of attending online teaching emerged as deeply negative. In mathematics, this results in student progress falling 0.41 short in the standard deviation for the first year following their transfer. These negative effects become still worse in the second year (0.48 worse than average) before dipping still further in the third year (0.50 off the standard deviation). These results also held in terms of reading skills. **We may thus imagine the effects of virtual schools on the progress made by students experiencing learning difficulties or are either at risk or from otherwise disadvantaged backgrounds.**

New analysis of virtual schools carried out by Curran A. Prettyman and Tim R. Sass reports that "in overall terms, the results of virtual learning in comparison with in-person learning hold little promise. Schools that operate totally online, as a rule, present gains in learning clearly below those of physical schools."

Confinement and distance learning

In the analysis that we carried out in 2021, 19 studies on the effects of the first confinement and virtual teaching on the academic progress of around 13 million students attending primary and secondary schools from various different countries (the United Kingdom, Australia, Belgium, the United States of America, France and the Netherlands), we verified a trend towards negative results for reading but with a greater impact on mathematics among students who received distance learning classes during the first confinement, especially in primary schooling. For at risk students, as in other cases, these deviations seem to be still greater even in countries such as the Netherlands and others better positioned to alternate between distance and in-person teaching. One of the studies that we examined estimated an **average loss of between five and nine months of learning through to June 2021**. In the case of the most vulnerable, this lag rose to between six and twelve months.

It would be perfectly logical to foresee similar effects, hence, more negative levels of student progress during the pandemic based on the studies that demonstrate the negative consequences of virtual schools for the performance of students in non-pandemic contexts (and here not forgetting that the bulk of these studies only analysed the effects following the first confinement). By April 2021, many countries had already experienced between two and four confinements since the pandemic first broke out. Hence, these **successive confinements, without a shadow of a doubt, will have led to still more negative results among children.**

Furthermore, it is important to emphasise that these successive confinements ongoing between the winter of 2020 and spring of 2021 have driven **multiple psycho-social consequences in children attending creches and primary schools and even in adolescents attending secondary school:** anxiety, depression, concentration difficulties, social isolation and lower levels of physical activity. The sleeping patterns of children and adolescents also seem to have been disturbed. Young, post-university adults also seem to have encountered the same difficulties as their younger peers. The negative effects of the pandemic on variables beyond the academic realm — anxiety, feelings of depression, etcetera — may diverge between countries, which would seem to derive from the level of confinement imposed and the prevailing parental stress level.

In summary, the effects of virtual schools and education, whether or not in times of pandemic, would seem generally negative. Nevertheless, should an emergency imply the closure of schools, we do consider it clearly preferable to provide distance learning to students to ensure schools are able to maintain minimum levels of contact with their pupils.

Distance learning with the schools closed

There is thus the need to guarantee high quality distance learning should schools have to close. This means that **virtual teaching should distance itself from the pedagogic techniques generally associated with technologies.** According to Daisy Christodoulou, "technology has been applied to introduce increasing levels of pseudo-science into the teaching profession." Indeed, there is also the need to transfer the crucial factors for effective teaching in an in-person format to distance learning/training. Over half a century of studies into effective teaching demonstrate the beneficial effects of direct, systematic and explicit teaching on the academic progress of all students with still greater impacts on students experiencing learning difficulties or at risk.

Irrespective of what the apostles of technology maintain, the 21st century school should very much be based on in-person teaching. Distance learning may be utilised above all in cases of the closure of teaching establishments and other emergency contexts. In order to be efficient, this should spurn the pseudo-scientific practices of a constructivist nature and ground its approaches in the practices with justified and proven track records for the good of all children.

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