

# The Impact of ICT in Student Learning: Evidence from a Large-scale Field Intervention

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## Abstract:

We study the impact of a large Information and Communication Technologies (ICT) intervention in France on students' learning. Using a nationally representative sample of middle schools that were part of a program in which students in grade 7 were given one-to-one or shared tablets, we perform entropy balancing and other matching procedures to causally estimate the impact of the intervention on their skills over three years. We find that the provision of one-to-one tablets had a positive effect on students learning in French oral comprehension (14%), Mathematics (14%) and Digital skills (8%) at the end of the second year (in grade 8) and qualitatively similar effects after three years. The shared tablets, however, had a zero, or a modest positive, effect on most skills after three years. We extend our analysis to understand the heterogeneity of the effect using Random Causal Forest. Importantly, when we look across socio-economic status (SES), we see that the effects are largest among the lowest SES group and, most notably with strong effects on the Math and Digital performance. Another important heterogeneity is with respect to teachers' characteristics. We find students perform best when their teachers have good digital skills. Finally, combining detailed survey and academic performance data, we broaden our analysis to study the differential effect of this ICT intervention on school closures in 2020 due to the COVID pandemic (when students enter grade 10).