

Use of Educational Technology for Instruction in Public Schools: 2019–20

First Look—Summary

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Introduction

This report is based on the public school survey “Use of Educational Technology for Instruction.” The survey was conducted by the National Center for Education Statistics (NCES). NCES is part of the Institute of Education Sciences (IES), U.S. Department of Education (ED). The Office of Educational Technology (OET) asked NCES to conduct the survey. National policy about technology for education is developed by OET, another part of ED. Policies include the National Education Technology Plan (NETP). The NETP is a national plan for using technology to improve learning. It focuses on using technology to change how children are taught in order to provide greater access to high quality education. The growing use of technology affects the education of students both in school and out of school. While access to technology can give great learning opportunities to students, technology alone does not guarantee a better education. Schools and teachers play a central role in using technology to strengthen teaching and learning.

This report shows national data from a sample survey of public schools about their use of technology for teaching and learning during the 2019-20 school year. Questions were asked about conditions before the coronavirus pandemic started. Schools that completed the survey after the coronavirus pandemic started were asked to report about pre-pandemic experiences. This report presents data about public school technology resources and ways that schools use these resources to teach. This includes whether schools have computers for each student and if students can take school-provided computers home. The number of computers in the school and where they are in the school is also considered. Data on the quality of computers and software used for teaching and learning are included. In addition, estimates on how well internet connections work in the parts of the school used for teaching and learning are shown. Respondents were also asked about online resources used for teaching and learning at the school. Challenges teachers face using technology for teaching and how teachers are trained to use it was another survey topic. Questions about training include the types of staff who work with teachers to make better use of technology for teaching and learning. Respondent views of how student learning is affected by the use of educational technology were also sought. Respondents were principals or other school staff who know how technology is used at the school for teaching and learning. Data about teachers in the report are from these respondents. This needs to be kept in mind while reading the report and report tables. Computers were defined as desktop, laptop, and tablet computers. They included Chromebooks and iPads. Smartphones were not counted as computers.

Data were collected in spring 2020 using the Fast Response Survey System (FRSS). FRSS is designed to collect focused data from national samples of districts, schools, or teachers. It is designed to limit burden on respondents and to be collected quickly. The survey was mailed to 1,300 public schools in the 50 states and the District of Columbia. A letter that went with the survey and the survey itself indicated that the principal or the person in the school who knew the most about the use of technology for teaching and learning in the school should answer. Respondents could fill out a paper questionnaire or complete one online. Tables including estimates referenced in this document and additional statistics from the survey data can be found [here](#). The material in this link also provides more information about how the data used in the report were collected and the questionnaire that was used.

Statistics presented in the report are weighted. Weights were used to make the data represent all public schools, not just those who answered. Standard errors are also provided. Sampling leads to some uncertainty in the statistics and standard errors can be used to account for that uncertainty. Appendix A presents tables of national estimates and appendix B presents standard errors for the estimates. Information about how the survey was designed and fielded, response rates, and other measures of data quality is in

appendix C. Appendix C also has definitions of the variables in the report (i.e., school characteristics). The questionnaire is in appendix D.

Because the report is meant to introduce new data from the survey through tables with very basic information, only select findings are given. Findings were chosen to show the range of data available from the survey and not to discuss all of the collected data. They do not stress any one issue. Readers should not treat comparisons of the estimates as causal. Many variables in the report are related to each other. How they might interact is not studied here. Comparisons drawn in the findings were tested using statistical tests. These are based on standard errors noted above. Statistical tests were set to measure differences using a .05 level of significance using Student's t tests. No adjustments were made for multiple comparisons. The full report including appendixes is [here](#).

Selected Findings

This section presents estimates based on survey answers from public schools on their use of technology for teaching and learning. Information is about the 2019-20 school year before the start of the coronavirus pandemic.

- Forty-five percent of schools reported having a computer for each student (table A-1). An extra 37 percent reported having a computer for each student in some grades or classrooms. Fifteen percent let students in all grades take school-provided computers home and another 8 percent let students in some grades take them home.
- About one third (34 percent) of computers for student use in school were given to individual students to carry with them during the school day (table A-2). Thirty-nine percent of the student-use computers stayed in a specific classroom, 16 percent moved between classrooms, and 10 percent were in resource rooms, computer labs, and library and media centers.
- In addition to the 15 percent of schools that let all students take computers home, another 15 percent let students take computers home on a short-term basis (tables A-1 and A-3). About a tenth of all schools (9 percent) gave mobile hotspots or web-enabled devices with paid data plans for students to take home.
- A little over 8 in 10 schools rated the overall quality of computers used for teaching and learning as good (52 percent) or very good (30 percent) (table A-3). About the same percentage rated the overall quality of their software for teaching and learning as good (53 percent) or very good (31 percent). About 9 out of 10 schools reported that their computers met the school's teaching and learning needs to a moderate (38 percent) or large extent (52 percent). Roughly the same percentage said it was usually (41 percent) or always easy (51 percent) for teachers to find enough computers to use with their students.
- Nearly two-thirds (64 percent) of schools said that internet connections in teaching and learning areas of the school were very reliable (table A-3). About half (52 percent) reported having problems to a small extent with internet connections or speed when large numbers of students were online. Another 20 percent of schools do not have these problems at all.
- About two-thirds of schools said that leaders at the school have moderate (42 percent) or a lot of flexibility or leeway (23 percent) in choosing the types and amount of learning and teaching technology bought for the school (table A-3). About three-quarters of schools said that leaders at the school have moderate (43 percent) or a lot of leeway (30 percent) in choosing the types and amounts of training, or professional development, teachers get on using technology for teaching and learning.
- Schools reported how broadly online resources were used for teaching and learning at school. Table A-4 presents the range of resources asked about and shows that half used interactive textbooks to a moderate (35 percent) or large extent (15 percent). About the same percentage used self-contained packages - 34 percent to a moderate extent and 21 percent to a large extent.
- A little over 70 percent of schools said that their teachers used technology for activities normally done in the classroom to a moderate (47 percent) or large extent (24 percent) (table A-5). In comparison, about half said that their teachers used technology for classroom work that would not be possible without it to a moderate (37 percent) or large extent (10 percent).
- Nearly half of schools said that their teachers were given training that focused on how to use a computer or software to a moderate (36 percent) or large extent (11 percent) (table A-5). About the same percentage said that their teachers were trained on how to use technology for teaching and learning during classes for specific subjects to a moderate (40 percent) or large extent (13 percent).

- Schools were asked about the types of staff who work with teachers to bring technology into classes for teaching and learning. Fifty-seven percent reported that content specialists, or experts, from the school or district work with teachers for this purpose (table A-6). Schools reported using experts in educational technology (61 percent) or other classroom teachers with training in technology (65 percent). Three out of four schools reported using other types of school staff like library media experts (76 percent).
- When asked about how technology was affecting student learning, 33 percent of schools said they strongly agreed that the way it is used in their school helped students to be more independent and self-directed (table A-7). Similar percentages said that technology helped students to learn at their own pace (35 percent) and to learn collaboratively with peers (30 percent). Forty-one percent said it helped students learn more actively, and 27 percent said it helped students think critically.
- Roughly half of schools strongly agreed that teachers in their school want to use technology for teaching (49 percent) (table A-8). Rates of strong agreement were lower when schools were asked whether they agreed that teachers are sufficiently trained in how to use technology (18 percent), that teachers have enough training to use technology for teaching (18 percent), and that technical support for technology in the school is good enough (34 percent). Fourteen percent strongly agreed that other priorities in classes limited the use of technology for teaching and learning in their classrooms.
- As shown in table A-9, schools reported on a variety of challenges for teachers in using technology for teaching and learning in the school. A little less than two-thirds said that lack of time for teachers to become familiar with new technologies and then use them for teaching was a moderate (43 percent) or large challenge (22 percent).
- Schools were asked about challenges their teachers face in using technology for teaching purposes. Twenty two percent said that outdated computers or software was a moderate challenge (table A-10). Another 12 percent said that was a large challenge. Twenty six percent of schools said that lack of support on how to use technology for teaching was a moderate challenge and another 8 percent said it was a large challenge.