FEBRUARY 28, 2013

How Teachers Are Using Technology at Home and in Their Classrooms

A survey of Advanced Placement and National Writing Project teachers shows that digital tools are widely used in their classrooms and professional lives. Yet, many of these high school and middle school teachers worry about digital divides when it comes to their students’ access to technology and those who teach low-income students face obstacles in bringing technology into their teaching.

Kristen Purcell
Director of Research, Pew Research Center’s Internet & American Life Project

Alan Heaps
Vice-President, The College Board

Judy Buchanan
Deputy Director, National Writing Project

Linda Friedrich
Director of Research and Evaluation, National Writing Project

http://pewinternet.org/Reports/2013/Teachers-and-technology

FOR FURTHER INFORMATION, CONTACT:

Pew Research Center’s Internet & American Life Project
1615 L St., N.W., Suite 700
Washington, D.C. 20036

Media Inquiries:
202.419.4500
Summary of Findings

A survey of 2,462 Advanced Placement (AP) and National Writing Project (NWP) teachers finds that digital technologies have helped them in teaching their middle school and high school students in many ways. At the same time, the internet, mobile phones, and social media have brought new challenges to teachers.

In addition, they report that there are striking differences in the role of technology in wealthier school districts compared with poorer school districts and that there are clear generational differences among teachers when it comes to their comfort with technology and its use in their classrooms.

Asked about the impact of the internet and digital tools in their role as middle and high school educators, these teachers say the following about the overall impact on their teaching and their classroom work:

- 92% of these teachers say the internet has a “major impact” on their ability to access content, resources, and materials for their teaching
- 69% say the internet has a “major impact” on their ability to share ideas with other teachers
- 67% say the internet has a “major impact” on their ability to interact with parents and 57% say it has had such an impact on enabling their interaction with students

At the same time, 75% of AP and NWP teachers say the internet and other digital tools have added new demands to their lives, agreeing with the statement that these tools have a “major impact” by increasing the range of content and skills about which they must be knowledgeable. And 41% report a “major impact” by requiring more work on their part to be an effective teacher.

AP and NWP teachers bring a wide variety of digital tools into the learning process, including mobile phones, tablets, and e-book readers

The survey reveals the degree to which the internet and digital technologies, particularly mobile phones, suffuse teaching activities. Laptops and desktops are central, but they note mobile technology use has also become commonplace in the learning process:

- 73% of AP and NWP teachers say that they and/or their students use their mobile phones in the classroom or to complete assignments
- 45% report they or their students use e-readers and 43% use tablet computers in the classroom or to complete assignments
Teachers most commonly use digital tools to have students conduct research online, which was the focus of an earlier report based on these data. It is also common for these teachers to have students access (79%) and submit (76%) assignments online. More interactive online learning activities, such as developing wikis, engaging in online discussions, and editing work using collaborative platforms such as GoogleDocs, are also employed by some of the teachers in the sample.

Overall, 62% of AP and NWP teachers feel their school does a “good job” supporting teachers’ efforts to bring digital tools into the learning process, and 68% say their school provides formal training in this area. Still, 85% of these teachers seek out their own opportunities to learn new ways to effectively incorporate these tools into their teaching.

**Teachers worry about digital divides, though they are split about the impact of digital tools on their students**

These teachers see disparities in access to digital tools having at least some impact on their students. More than half (54%) say all or almost all of their students have sufficient access to digital tools at school, but only a fifth of these teachers (18%) say all or almost all of their students have access to the digital tools they need at home.

<table>
<thead>
<tr>
<th></th>
<th>All or almost all</th>
<th>Most</th>
<th>Only some</th>
<th>Hardly any</th>
</tr>
</thead>
<tbody>
<tr>
<td>In school</td>
<td>54%</td>
<td>27%</td>
<td>15%</td>
<td>5%</td>
</tr>
<tr>
<td>At home</td>
<td>18%</td>
<td>54%</td>
<td>26%</td>
<td>2%</td>
</tr>
</tbody>
</table>

54% of AP and NWP teachers say all or almost all of their students have sufficient access to digital tools while **IN SCHOOL**, but just 18% say the same is true **AT HOME**

*How many of your students have sufficient access [INSERT] to the internet and other digital technologies they need to effectively complete school assignments…*

Source: Teacher data from the Pew Research Center’s Internet & American Life Project Online Survey of Teachers, March 7 to April 23, 2012, n=2,462 middle and high school teachers.

Teachers of the lowest income students are the least likely to say their students have sufficient access to the digital tools they need, both in school and at home. In terms of community type, teachers in urban areas are the least likely to say their students have sufficient access to digital tools **IN SCHOOL**, while

---

rural teachers are the least likely to say their students have sufficient access AT HOME.

Overall, while many AP and NWP teachers express concern about growing disparities across schools and school districts, they are divided as to whether access to digital tools is leading to greater disparities among their students. A large majority of these teachers (84%) agree to some extent with the statement that “Today’s digital technologies are leading to greater disparities between affluent and disadvantaged schools and school districts.” However, asked whether today’s digital technologies are narrowing or widening the gap between the most and least academically successful students, 44% say technology is narrowing the gap and 56% say it is widening the gap.

Teachers of the lowest income students experience the impact of digital tools in the learning environment differently than teachers whose students are from more affluent households

AP and NWP teachers’ experiences with using digital tools in their teaching vary in some notable ways depending on the socioeconomic status of the students they teach. Among these findings:

- 70% of teachers working in the highest income areas say their school does a “good job” providing teachers the resources and support they need to incorporate digital tools in the classroom, compared with 50% of teachers working in the lowest income areas
- 73% of teachers of high income students receive formal training in this area, compared with 60% of teachers of low income students
- 56% of teachers of students from higher income households say they or their students use tablet computers in the learning process, compared with 37% of teachers of the lowest income students
- 55% of teachers of higher income students say they or their students use e-readers in the classroom, compared with 41% teaching in low income areas
- 52% of teachers of upper and upper-middle income students say their students use cell phones to look up information in class, compared with 35% of teachers of the lowest income students
- 39% of AP and NWP teachers of low income students say their school is “behind the curve” when it comes to effectively using digital tools in the learning process; just 15% of teachers of higher income students rate their schools poorly in this area
- 56% of teachers of the lowest income students say that a lack of resources among students to access digital technologies is a “major challenge” to incorporating more digital tools into their teaching; 21% of teachers of the highest income students report that problem
- 49% of teachers of students living in low income households say their school’s use of internet filters has a major impact on their teaching, compared with 24% of those who teach better off students who say that
- 33% of teachers of lower income students say their school’s rules about classroom cell phone use by students have a major impact on their teaching, compared with 15% of those who teach students from the highest income households
There are notable generational differences in how teachers experience the impact of digital technologies in their professional lives

As is the case among the full adult population, differences in technology use emerge between older and younger teachers. Specifically:

- Teachers under age 35 are more likely than teachers age 55 and older to describe themselves as “very confident” when it comes to using new digital technologies (64% vs. 44%)
- Conversely, the oldest teachers (age 55 and older) are more than twice as likely as their colleagues under age 35 to say their students know more than they do about using the newest digital tools (59% vs. 23%)
- 45% of teachers under age 35 have their students develop or share work on a website, wiki or blog, compared with 34% of teachers ages 55 and older
- Younger teachers are also more likely than the oldest teachers to have students participate in online discussions (45% v. 32%) and use collaborative web-based tools such as GoogleDocs to edit their work (41% v. 34%)
- Younger teachers are more likely to “very often” draw on colleagues for ideas about how to use new technologies in the classroom (22% of teachers under age 35 do this), when compared with teachers age 35-54 (16%) and teachers age 55 and older (13%)

At times, teachers’ own use of digital tools can run counter to their concerns about and perceptions of student use

In an earlier report on these data, we found that teachers expressed some concerns about what they saw as students’ overreliance on search engines to find information and complete research projects. In their words, their students increasingly “equate research with Googling,” and use search engines in lieu of more traditional sources without sufficient ability to judge the quality of information they find online. Regarding students’ use of search engines, the survey found:

- 76% of AP and NWP teachers “strongly agree that “search engines have conditioned students to expect to be able to find information quickly and easily”
- 83% agree that “the amount of information available online today is overwhelming for most students”
- 71% agree that “today’s digital technologies discourage students from finding and using a wide range of sources for their research”
- 60% agree with the notion that “today’s digital technologies make it harder for students to find and use credible sources of information”

Yet, the survey also confirms that search engines, and Google in particular, are key resources for AP and NWP teachers. Specifically:

- 99% of AP and NWP teachers use search engines to find information online
- 90% name Google as the search tool they use most often
- Virtually all AP and NWP teachers (99%) use the internet “to do work or research for their job”
• Almost three-quarters (73%) of AP and NWP teachers are “very confident” in their online search abilities

These results indicate that while these teachers are concerned about how their students use the internet in general—and search engines in particular—to find information, they are confident in their own ability to use these tools effectively.

In a similar vein, AP and NWP teachers use the online encyclopedia tool Wikipedia at much higher rates than U.S. adult internet users as a whole (87% vs. 53%). Wikipedia relies on user-generated, crowd-sourced content, a process that sometimes calls into question the accuracy of its information. In focus groups with teachers and students prior to the survey, Wikipedia was often noted as a tool teachers discourage or bar students from using because of concerns about the reliability of its content.

The internet and digital tools also play a key role in classroom preparation and professional networking

Digital tools are critical to AP and NWP teachers’ lesson preparation, networking and professionalization. Among the key findings in this area:

• 80% of AP and NWP teachers report getting email alerts or updates at least weekly that allow them to follow developments in their field
• 84% report using the internet at least weekly to find content that will engage students
• 80% report using the internet at least weekly to help them create lesson plans

AP and NWP teachers outpace the general adult population in almost all measures of personal tech use, yet 42% feel their students know more than they do when it comes to using digital tools

AP and NWP teachers are well ahead of national benchmarks in almost all measures of personal technology use:

• 94% of AP and NWP teachers own a cell phone, slightly higher than the national figure of 88% for all U.S. adults
• 58% of these teachers (68% of teachers under age 35) have a smartphone, compared with 45% of all adults
• 93% of teachers own a laptop computer vs. 61% of all adults
• 87% own a desktop computer vs. 58% of all adults
• 39% own a tablet vs. 24% of all adults
• 47% own an e-book reader vs. 19% of all adults
• 78% use social networking sites such as Facebook, LinkedIn or Google+, compared with 69% of adult internet users and 59% of all adults
• 26% use Twitter vs. 16% of adult internet users and 14% of all adults
Despite their heavy tech use, 42% of AP and NWP teachers say their students usually know more than they do when it comes to using new digital technologies. Just 18% feel they know more than their students. This is despite the fact that over half of AP and NWP teachers (56%) are “very confident” when it comes to learning how to use the latest digital tools, and another 39% say they are “somewhat confident.”

The basics of the survey

These are among the main findings of an online survey of a non-probability sample of 2,462 middle and high school teachers currently teaching in the U.S., Puerto Rico and the U.S. Virgin Islands, conducted between March 7 and April 23, 2012. Some 1,750 of the teachers are drawn from a sample of advanced placement (AP) high school teachers, while the remaining 712 are from a sample of National Writing Project teachers. Survey findings are complemented by insights from a series of online and in-person focus groups with middle and high school teachers and students in grades 9-12, conducted between November, 2011 and February, 2012.

This particular sample is quite diverse geographically, by subject matter taught, and by school size and community characteristics. But it skews towards educators who teach some of the most academically successful students in the country. Thus, the findings reported here reflect the realities of their special place in American education, and are not necessarily representative of all teachers in all schools. At the same time, these findings are especially powerful given that these teachers’ observations and judgments emerge from some of the nation’s most advanced classrooms.

In addition to the survey, Pew Internet conducted a series of online and offline focus groups with middle and high school teachers and some of their students and their voices are included in this report.

The study was designed to explore teachers’ views of the ways today’s digital environment is shaping the research and writing habits of middle and high school students, as well as teachers’ own technology use and their efforts to incorporate new digital tools into their classrooms.

About the data collection

Data collection was conducted in two phases. In phase one, Pew Internet conducted two online and one in-person focus group with middle and high school teachers; focus group participants included Advanced Placement (AP) teachers, teachers who had participated in the National Writing Project’s Summer Institute (NWP), as well as teachers at a College Board school in the Northeast U.S. Two in-person focus groups were also conducted with students in grades 9-12 from the same College Board school. The goal of these discussions was to hear teachers and students talk about, in their own words, the different ways they feel digital technologies such as the internet, search engines, social media, and cell phones are shaping students’ research and writing habits and skills. Teachers were asked to speak in depth about teaching research and writing to middle and high school students today, the challenges they encounter, and how they incorporate digital technologies into their classrooms and assignments.