BRING YOUR OWN DEVICE TECHNOLOGY PROGRAMS: NATIONAL SURVEY RESULTS

At a Glance

This Information Capsule examines Bring Your Own Device (BYOD) programs in U.S. schools. Based on the results of several recently administered national surveys, the following conclusions may be drawn:

- There is widespread support among both students and parents for BYOD programs.
- The vast majority of students own or have access to a mobile computing device and have access to the Internet at home.
- Many students prefer to use their own mobile computing devices, rather than devices provided by their schools. The majority of students do in fact use their own devices in the classroom.
- Students regularly use their computers for a wide variety of classroom activities, especially research and homework, in their core content area courses. Many students customize their assignments to take advantage of the strengths and capabilities of their devices.

Bring Your Own Device (BYOD) programs are rapidly gaining in popularity in schools across the country. BYOD programs can save school districts significant amounts of money. When districts establish BYOD programs, they do not have to pay for district-bought devices and they do not have to continually update students' devices in order to keep pace with technological advances. In addition, districts are not required to provide technical assistance for student-owned devices. It then becomes easier to afford equipment for students who do not own devices. For these reasons, many districts have concluded that BYOD programs make more financial sense than issuing devices that have been purchased by the district (Morrison, 2014; Center for Digital Education, 2012).

Widespread Support for BYOD Programs

There is widespread support among both students and parents for BYOD programs. In Project Tomorrow's (2014) Speak Up Survey of a nationally representative sample of over 32,000 parents nationwide, 64% of respondents said they would purchase a mobile device such as a tablet or laptop for their child to use at school if it was allowed. Sixty-one percent of parents said their preference was for their child to be in a class where he or she could use their own mobile device.

Similarly, Project Tomorrow's (2014) Speak Up Survey asked a nationally representative sample of over 325,000 students for their ideas on how to improve technology use at their schools. The second most common answer (after "Allow greater access to websites I need for learning") was "Let me use my own mobile device." This response was selected by 55% of middle school students and 51% of high school students.

Bailey Mitchell, Chief Technology and Information Officer at Forsyth County Schools (Georgia) in 2012, noted that when schools issue students identical devices with identical software packages, this may "rob the students of the benefit of learning how to use their tools productively." In a BYOD environment, students use a variety of computing devices and develop an understanding of which type of device is best suited to each assignment. Mitchell cautioned that districts that provide all students with the same device and software run the risk of "replicating a very traditional assignment in a digital way," rather than using their devices in new ways to produce original content and solve problems (Center for Digital Education, 2012).

Most Students Own a Mobile Computing Device

Pearson's (2013) Student Mobile Device Survey of a nationally representative sample of 2,350 students in grades 4-12 found that most students reported that they owned at least one type of computing device. In fact, only 13% of students said they did not own a device (Table 1).

Table 1. Device Ownership Among 4th through 12th Grade Students, 2013

Device Ownership	Percentage
Laptop	50%
Smart Phone	43%
Desktop Computer	37%
Small Tablet	18%
Full-Size Tablet	14%
Basic E-Book Reader	12%
Notebook	7%
None of the Above	13%

Percentages add up to more than 100 because students may own more than one type of device.
Source: Pearson, 2013.

Pew Research Center's Internet Project Library User Survey confirmed that most students ages 16 and 17 own their own computing devices. Pew surveyed a nationally representative sample of over 6,000 Americans ages 16 and older, 214 of whom were 16 or 17 years old. Among respondents who were ages 16 and 17, 91% reported owning cell phones; 68% reported owning smart phones; 46% reported owning tablet computers; and 24% said they owned e-book readers (Rainie & Smith, 2013).

Type of Device Accessible to Students Varies by Grade Level

Survey results indicate that the majority of students have access to personal mobile devices. However, some students do not own the device they use. For example, Pearson's (2013) Student Mobile Device Survey found that 28% of students in grades 4-12 reported that they shared the tablet they used in school with other family members.

Project Tomorrow's (2014) Speak Up Survey found that the type of computing device accessible to most students varied by grade level. As can be seen in Table 2, smart phones were the most

popular type of device in the middle and high school grades, while more students in grades 3-5 reported having access to laptops than other types of devices.

Table 2. Students' Personal Access to Mobile Devices, by Grade Level Group, 2013

Grade Level	Digital Reader	Tablet	Laptop	Smart Phone
Grades K-2	18%	41%	41%	21%
Grades 3-5	39%	58%	62%	50%
Grades 6-8	48%	61%	66%	73%
Grades 9-12	39%	50%	66%	89%

Source: Project Tomorrow, 2014.

Most, But Not All, Students Have Access to the Internet at Home

One of the biggest concerns surrounding the implementation of BYOD programs or any type of one-to-one technology initiative is that not all K-12 students have access to the Internet outside of school. Project Tomorrow's (2014) Speak Up Survey of 577 technology leaders in over 9,000 public and private schools found that 46% of respondents identified digital equity issues such as providing students with access to the Internet beyond the school day as one of their greatest challenges.

The Pew Internet Teens and Privacy Management Survey was administered to a nationally representative sample of 802 students ages 12-17 and 802 parents of students ages 12-17. Survey results indicated that most students reported being able to access the Internet at home. Ninety-five percent of students said they had Broadband Internet access at home, 74% said they had mobile access to the Internet through a device such as a smart phone or tablet, and 25% said they accessed the Internet *mostly* on their smart phone (Madden, 2013).

Most of the parents responding to the Pew Internet Teens and Privacy Management Survey reported that they had Internet access in their homes, regardless of household income (Table 3). The percentage of parents reporting that their homes had Internet access increased as household income increased (Madden, 2013).

Table 3. Percentage of Homes With Internet Access, by Household Income, 2012

Household Income	Percentage Reporting Internet Access
Less than $30,000 per year	89%
$30,000 to $49,999 per year	94%
$50,000 to $74,999 per year	99%
$75,000 and over per year	99%

Source: Madden, 2013.

Project Tomorrow's (2014) Speak Up Survey asked students if the computer they used at home had Internet access. Results were reported separately for Title 1 and Non-Title 1 schools. As can be seen in Table 4, only a small minority of students reported that they did not have Internet access on the computers they used at home, regardless of grade level. Across all grade levels, students attending Non-Title 1 schools were more likely to report that they had Internet access at home.

<u>Table 4. Percentage of Students Reporting that the Computer They Use at Home Does Not Have Internet Access, by Grade Level Group and School Type, 2013</u>

Grade Level	Percentage of Students Without Home Internet Access	
	Title 1 Schools	**Non-Title 1 Schools**
Grades 3-5	13%	6%
Grades 6-8	10%	4%
Grades 9-12	9%	5%

Source: Project Tomorrow, 2014.

Project Tomorrow's Speak Up Survey reported that 64% of students surveyed identified 3G- or 4G-enabled devices as their primary means of connecting to the Internet, with another 23% saying they connected through an Internet-enabled TV or Wii console. When asked why they did not use traditional broadband access as their primary means of connectivity, students said there was less competition with other family members when accessing the Internet through these other devices (Riedel, 2014).

Project Tomorrow (2014) researchers concluded that the availability of lower cost and more fully featured mobile devices with Internet access, including smart phones and tablets, has led to an increase in the number of students with access to the Internet outside of school. They suggested, however, that school districts develop new strategies for providing students with out-of-school Internet access. For example, districts might work with local corporations, agencies, and governments to lower the cost of Internet service for low-income families and to increase the availability of free public Wi-Fi.

Many Students Prefer to Use Their Own Mobile Devices

Kristine Sevik, senior advisor at the Norwegian Centre for ICT in Education, stated, "If students are given the choice, they will want to use their own device, because that is the one they have chosen." She added that many students "get frustrated with school computers that are often slow and run bad software. A lot of students prefer using their own devices with programs they are used to" (itslearning, 2013).

Lars-Jacob Hove, head of project management at itslearning in Norway, says that allowing students to use their own devices gives them the freedom to decide where and when they learn, because they use the same device in personal and school life. He noted, "In addition to having control over the device, this may help remove some of the barriers between the formal school life and their leisure time, extending the classroom and learning activities into their personal life through more informal learning" (itslearning, 2013).

Pearson's (2013) Student Mobile Device Survey found that the majority of students in grades 4-12 do in fact use their own devices for classwork, rather than devices provided by their schools. Among students who use a tablet for school work, more than half (52%) reported that they personally owned the tablet they used in school, 28% reported that they shared the tablet they used in school with their family, and 17% said they used a tablet provided by their school.

Project Tomorrow's (2014) Speak Up Survey found that 25% of students at the elementary level (grades 3-5), 30% of students at the middle school level (grades 6-8) and 32% of high school students (grades 9-12) said they used a mobile device provided by their school. At all grade levels, higher percentages of students (31%-44% at the elementary grades, 47%-68% at the

middle school grades, and 52%-75% at the senior high school grades) reported that they took tests online and accessed class information, such as grades and homework, through an online portal. These results suggest that many students used their own devices to access technology in the classroom.

At the New Technology High School in Napa, California, students have the option of bringing their own device to school or using a school-issued netbook. In 2013, the school reported that only 50% of the school-issued devices were in use. Many students preferred to use their personally owned devices at school (Kelly, 2013).

West St. Paul – Mendota Heights – Eagan Area Schools (also known as School District 197) in Minnesota found that high school students preferred to bring their own computers and tablets to school instead of using school-issued devices. According to district officials, reasons students chose to bring their own devices included the ability to:

- Select the platform that fits their personal educational needs and preferences (Mac vs. PC; laptop vs. tablet);
- Permanently archive and back-up files;
- Customize settings and configure overall setup;
- Download and install personal applications and software;
- Keep the laptop or tablet through the summer months;
- Upgrade their device at their own discretion; and
- Continue using the device in college or post-secondary learning (School District 197, 2013).

Raths (2013) cautioned that survey responses may differ markedly from what actually occurs once BYOD programs are implemented. For example, Mankato Area Public Schools in Minnesota began experimenting with a BYOD program during the 2012-2013 school year. Although 90% of the district's high school students surveyed prior to the implementation of the BYOD program said they owned their own devices, district staff reported that a much smaller percentage of students were willing to bring their devices to school on a regular basis. The district's director of libraries and technology said, "Some teachers are shy of BYOD because they can't count on the students to bring them."

Mobile Devices Are Used in Content Area Courses for a Wide Range of Activities

Pearson's (2013) Student Mobile Device Survey found that across all grades (grades 4-12), at least half of students reported that they used tablets for school work at least a few times per week in core content area courses. Fewer students reported using their tablets in foreign language classes than in English/language arts, mathematics, history/social studies, and science classes (Table 5).

<u>Table 5. Percentage of Students Reporting Tablet Usage at Least a Few Times per Week, by Content Area, 2013</u>

Content Area	Percentage Using Tablets in Class
English/Language Arts	53%
Mathematics	52%
History/Social Studies	51%
Science	50%
Foreign Languages	36%

Source: Pearson, 2013.

Findings from Pearson's (2013) Student Mobile Device Survey indicated that students used their mobile computing devices for a wide variety of activities in the classroom. As can be seen in Table 6, among students who reported using a full-size tablet for at least one core course, most students said they used their device to do research and homework.

<u>Table 6. Percentage of Students Engaging in School-Related Activities with Tablets, 2013</u>

Activity	Percentage of Students Engaging in Activity
Do Research	72%
Do Homework	62%
Check Assignments	45%
Read Digital Textbooks	31%
Read or Send School-Related Email	29%
Take Notes in Class	29%
Take Short Quizzes	27%
Check Class Schedules	24%
Take Notes & Highlight While Reading Books	22%
Give Presentations	18%
Make or Use Flash Cards	16%
Join a Discussion about School Work	15%
Take Exams	15%

Percentages add up to over 100% because students were permitted to select multiple activities.
Source: Pearson, 2013.

According to Project Tomorrow's (2014) Speak Up Survey results, the use of video for classwork and homework is on the rise. One-third of students reported that they accessed video online – through their own initiative – to help with their homework. Additionally, 23% of students said they accessed videos that had been created by their teachers (Riedel, 2014).

Most likely because of the wide variety of devices available to students, researchers have seen a pattern of students completing customized assignments based on the strengths of the device they are using. For example, a student with a laptop may write a traditional paper about a topic, while one with a smart phone may create a video answering the same question; another student with a tablet might produce an animation, storyboard, or blog post (Riedel, 2014; Center for Digital Education, 2012).

Summary

In summary, there is widespread support among both parents and students for BYOD programs. The vast majority of students own or have access to a mobile computing device and have access to the Internet at home. However, school district administrators still voice concerns about digital equity. When implementing BYOD programs, districts must ensure that they have a supply of devices available for students who do not own a device. In addition, districts should develop strategies for providing students with out-of-school Internet access.

Researchers have found that students prefer to use their own mobile devices in the classroom, rather than devices provided by their schools. In fact, surveys indicate that the majority of students do in fact use their own devices for classwork.

Surveys of mobile computing device usage indicate that at least one-half of students report that they regularly use their computers in English/language arts, mathematics, history/social studies, and Science classes. Students report that they use their computers for a wide variety of school-related activities, especially research and homework. Many students customize their assignments to take advantage of the strengths and capabilities of their devices.

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