Classroom Trends: Teachers as Buyers of Instructional Materials and Users of Technology

STATE OF THE K-12 MARKET 2016

MDR
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CHAPTER 1
Overview

Classroom Trends—Teachers as Buyers of Instructional Materials and Users of Technology is the first of four publications that will make up the State of the K-12 Market Report 2016 series. Additional topics that will be addressed in this series throughout the 2016-2017 school year include technology and curriculum trends as viewed from the district level, as well as a school trends report based on principals’ perspectives.

This new series builds on the annual State of the K-12 Market reports, published from 2010 through 2015, by Market Data Retrieval (MDR)’s EdNET Insight team. As with prior reports, each of the reports in this new State of the K-12 Market Report 2016 series will be based on wide-scale market research surveys and are being written by industry experts. Each report provides detailed survey findings and information about key trends affecting classroom teachers and other school, district, and state-level educators, as well as actionable recommendations for publishers and other providers of education-related products and services.

While many in the education industry tend to focus on states or districts for large-volume sales, it is important not to lose sight of teachers’ perspectives. They are the foot soldiers on the front lines, and if a textbook or worksheet or app or the newest digital gadget is addressing a particular need and advancing the teaching and learning process in classrooms, it is likely to be enthusiastically endorsed and supported by teachers. And teachers have significant influence over many purchasing decisions made by schools and districts, as well as making direct purchases of certain types of instructional materials and supplies through classroom budgets and their own personal funds.

Specific topics in this report include the types of materials teachers buy for their classrooms and where they do their shopping, the factors that play a role in deciding what to purchase, their roles in school and district selection of a range of educational products, and how they find—and create their own— instructional materials they use in their classes. Another series of topics focuses on digital instructional materials—what features they value, what roadblocks they have encountered, what technologies are available in their classrooms, the challenges of using apps, and the overall adequacy of instructional technology in their school.

Highlights

Teachers spend an estimated $1.75 billion per year on instructional materials and school supplies from classroom budgets and teacher out-of-pocket expenditures. Well over half (59%) of the 3.4 million U.S. public school teachers receive a classroom budget from their schools, averaging $270 per year. In addition to that, 97% of teachers spend on average an additional $381 from their personal funds on classroom materials. In total, the average
teacher spends $651 annually on materials and supplies for her classroom, whether paid for by the school or with her own funds. Additionally, 75% of teachers also spend another $250 per year on average from their personal funds for professional development.

<table>
<thead>
<tr>
<th></th>
<th>Average Spending Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>School- or District-Provided Classroom Budget</td>
</tr>
<tr>
<td>Instructional Materials and School Supplies</td>
<td>$270</td>
</tr>
<tr>
<td>Professional Development</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$270</strong></td>
</tr>
</tbody>
</table>

Teachers typically do not spend all of their funds on one item; rather they are more likely to purchase more lower-priced materials with their funds. More than two-thirds (69%) of teachers are most likely to purchase basic classroom supplies such as paper and pencils, and half (51%) are most likely to purchase print supplemental materials with their school budget. With personal funds, almost three-quarters (73%) of teachers are most likely to purchase student incentives/rewards, 65% will purchase classroom supplies, and 53% are most likely to purchase bulletin board items and print supplemental materials. Not only are these materials lower in price, but they also do not require the approval of a district or school decision maker, making it easier for teachers to purchase.

Teachers, schools, and districts more often rely on instructional materials they create themselves. Two-thirds (66%) of teachers use—at least once a week—materials that they or other school staff had developed. This is in contrast to the 51% that use commercial materials provided by their school, district, or state at least weekly.

Since teachers are producing instructional materials, they spend considerable time on this task in addition to time spent searching for materials. More than two-thirds (69%) of teachers spend four or more hours per week creating instructional resources. Fifty-two percent spend four or more hours per week searching for free resources, and 23% spend the same time searching for priced resources for the classroom.

On average, teachers spend 5.2 hours per week creating instructional resources, 4.3 hours per week searching for free resources, 3 hours per week searching for paid-for resources, and 2.9 hours participating in online professional learning opportunities.
Other key findings are:

- Teachers are often involved in the purchase of instructional materials. About two-thirds have some level of influence over the purchase of supplemental materials, school supplies, and textbooks—as either final decision makers, on a purchasing committee, or product reviewers. Nearly a quarter are final decision makers for school supplies and 12% for supplemental materials.

- To gather information about instructional materials, teachers prefer taking the initiative to find the information they need rather than having the information pushed to them. The most popular sources for finding information are retail stores (preferred by 67%) and websites and Internet searches other than Amazon (preferred by 61%). Next, there is a three-way tie for teacher stores (59%), Amazon (58%), and print catalogs (58%).

- To purchase instructional materials, teachers generally go to the same places as they do to gather information. The top five sources—retail stores, websites and Internet searches other than Amazon, teacher stores, Amazon, and print catalogs—are a mix of brick and mortar stores and online retailers, thus indicating that the more established channels continue to be relevant, but that online retailers have grown to be almost equal in strength. It also suggests that teachers turn to sources that they probably frequent in their personal lives—the Internet and big box stores—to purchase classroom materials.

- For social media usage for professional purposes, YouTube is the most visited with 42% of teachers visiting the site at least weekly. Pinterest is next with 31%, followed by Facebook at 29% for at least weekly usage.

- Ease of use is the most important factor (90%) in the purchase of instructional materials. Positive reviews/evaluations and recommendations from other educators are tied as next most influential for 75% of teachers surveyed. Only half of teachers say that a digital format is an important factor.
• Despite the hype in the media and support of the U.S. Department of Education, open educational resources (OER) has not gained mainstream traction yet in classrooms. Nearly half (47%) of teachers surveyed never use OER, indicating significantly less usage than any other type of resource.

• Teachers report using a variety of innovative teaching methods, with project-based learning (PBL) having been substantially implemented by 43% of respondents, and with a total of 83% having at least experimented with PBL. Incorporating STEM (Science, Technology, Engineering, and Math) activities in their classroom was reported to be substantially implemented by 28% of teachers, with 65% indicating some level of implementation.

• Increased student engagement (79%) and ability to personalize learning (66%) are the highest value features of digital instructional materials and assessments.

• Instructional materials used most frequently by most teachers are not purchased (that is, not commercial materials provided by the school, district, or state). Sixty-six percent of respondents are using materials developed by the teacher herself or staff from the school, and 62% are using those found free on the Internet (non-OER).

• For classroom technologies, 82% of teachers have access to a reliable wireless network and 66% have a classroom printer. Two-fifths to just more than half of teachers have access to a document camera (54%), an interactive white board (53%), and an interactive projector (41%).

• Regarding classroom devices, 38% of teachers have consistent access to a cart with a classroom set of devices, 28% have a work station with three to six devices for students to share, and 23% have a device for each student.

• Three-fourths of teachers rated their overall instructional technology adequacy (i.e. student devices, presentation systems and tools, network speed, and bandwidth) as average or better. Only a quarter rated their technology inadequate.

• The biggest roadblocks to using purchased digital products are not having the required materials and/or technology (69%), not matching the needs of students (65%), and needing more training (64%).

Profile of U.S. Public School Teachers

As a backdrop to examining the results of MDR’s teacher survey in detail, it is useful to first review the overall characteristics of the teaching force in the United States. The National Center for Education Statistics (NCES) provides a detailed picture of U.S. elementary and secondary schools and their staff based on data collected through the Schools and Staffing Survey (SASS) roughly every four years. The most recent study, Characteristics of Public and Private Elementary and Secondary School Teachers in the United States was published in August 2013, and provides comprehensive data about teachers’ personal and demographic characteristics, levels of experience, educational background, time spent on school-related activities, salaries, class-size, and more. Unless otherwise noted, volume and other background data about U.S. public school teachers is based on this NCES report.¹
There are 3.85 million teachers in elementary and secondary schools, of which 3.4 million are public school teachers, with the remainder in private schools. About half (48%) of the teachers work in elementary schools, 17% in middle schools, 28% in high schools—with the remainder in combined schools.

The demographics of public school teachers have remained fairly consistent over time. The racial/ethnic composition of the public school teaching workforce is approximately 82% non-Hispanic White, 7% non-Hispanic Black, 8% Hispanic, with the remainder from other categories. About three-fourths (76%) of teachers are female and 24% are male. The average age of teachers in public schools is 43 years. Forty-eight percent of public school teachers have master’s degrees.

The average teacher has been in the profession for 14 years. The table below details the teaching population by years of experience.

<table>
<thead>
<tr>
<th>Teaching Experience</th>
<th>Number of Years</th>
<th>Percentage of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 4 years</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>4-9 years</td>
<td>29%</td>
<td></td>
</tr>
<tr>
<td>10-14 years</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>15 or more years</td>
<td>21%</td>
<td></td>
</tr>
</tbody>
</table>

Source: NCES, Characteristics of Public and Private Elementary and Secondary School Teachers in the United States, Table 3.

As for teacher mobility, of the 3.4 million public school teachers who were teaching during the 2011–2012 school year, 84% remained at the same school the following year, 8% moved to a different school, and 8% left the profession.

Public school teachers spend 52 hours per week on all school-related activities, of which 31 hours are spent delivering instruction to students during a typical week. The remaining 21 hours are spent on other activities. What do teachers do besides teach? Plan lessons, grade student work, communicate with parents and students, attend department meetings, discuss student data, attend IEP meetings, decorate their classrooms, make copies, and participate in professional learning, to name just a few activities.

**Methodology**

An email with a link to an online survey was sent to a random sample of 200,000 public school teachers selected from MDR’s National K-12 Education Market Database. Teachers were selected at random on the basis of grade level taught or subject area expertise. The sample included special education, bilingual and career and technical education teachers. The survey deployed on May 18, 2016 and closed on May 22, 2016 with 1,316 qualified respondents. A qualified respondent had to be employed as a classroom teacher at the elementary school, middle/junior high school, or high school level at the time she was completing the survey. The median completion time was 13 minutes.
Background of Respondents

Grades Taught
The respondents span all K-12 grade levels. Nearly half (47%) teach elementary students, 32% teach middle/junior high students, and 26% teach high school students. Respondents were able to check more than one category if they teach in multiple grade levels.

Figure 2: Teacher Survey Respondents: Grades Taught

Subjects Taught
Survey respondents were asked to identify the subjects they teach. The response options included classroom teacher (generalist who teaches most subjects) as well as core subject areas such as reading, mathematics, science, and social studies, and additional subjects such as computers, art, and physical education. The largest group of respondents are classroom teachers (23%) teaching multiple subjects most likely in elementary school. The next largest group teaches reading, English or language arts (19%) followed by mathematics (18%), science (16%), and social studies (12%). Thirteen percent teach special education. Subject-area specialists were able to select multiple subjects taught on the survey. Twelve percent of respondents selected the “other” category comprised of teachers of a variety of subjects including Spanish, French, business, music, engineering, and speech. Some respondents in this category teach groups of students such as gifted and talented and English Language Learners.
Years of Teaching Experience

The respondents are an experienced group of teachers. Forty-five percent have more than 20 years of experience, with 79% at more than 11 years. Thirteen percent have 6-10 years of experience. Seven percent have 2 to 5 years, and only 1% have less than 2 years of experience. The sample skewed toward more experienced teachers. Perhaps newer teachers did not have the time to respond to the survey.

Figure 3: Teacher Survey Respondents: Subjects Taught

Figure 4: Teacher Survey Respondents: Years in the Teaching Profession
School Size
Size of the respondents’ schools were appended from MDR’s database. Schools were divided into four size categories based on student population: the small category represents schools with 1 to 200 students; medium-size schools have 300 to 499 students; large schools have 500 to 999 students; and schools with 1,000 or more students are considered very large. Eighteen percent of respondents teach in small schools, 26% in medium schools, 43% in large schools, and 13% in very large schools.

Figure 5: Size of Schools Where Respondents Teach
Teachers need a variety of classroom materials throughout the school year. And while schools and districts provide basic supplies and instructional resources, many teachers need additional or special materials. According to MDR’s survey, three-fifths (59%) of teachers are given an annual classroom budget by their school to spend on instructional materials and school supplies. The other two-fifths must rely on school- or district-supplied materials or pay out-of-pocket for new materials.

**Figure 6: Classroom Budget Provided: All Schools**

![Diagram showing 59% yes and 41% no for classroom budget](image)

Fewer teachers receive annual classroom budgets for instructional materials and school supplies from their school as the grade levels increase. Sixty-two percent of elementary school teachers have a budget provided by their school, whereas only 54% of high school teachers are offered a classroom budget. Middle school teachers fall in between at 59%. This tendency is not surprising since teachers in the lower grades generally have more flexibility over choice of materials and school supplies, while high school courses tend to follow a more set curriculum that is purchased by the school or district.
There is very little variation in classroom budgets for teachers by school size, except for very large schools. Roughly three fifths of small (61%), medium (60%), and large schools (62%) provide teachers with a classroom budget. In contrast, only 49% of very large schools offer their teachers a classroom budget. This may be due to centralized purchasing to get volume discounts in the largest schools.
Budget Dollars per Classroom

MDR's survey asked respondents to estimate the size of the classroom budgets provided to teachers in their school each year. (Only the 59% of teachers who reported that their schools typically provided teachers with classroom budgets were asked this question.) Responses reveal that teachers given a classroom budget receive an average of $270 per year for instructional materials and supplies. The most common classroom budget, reported by 40%, was $101-$250 per year. One-fourth (25%) have a budget of $100 or less, and 18% report budgets in the $251-$500 range. A fortunate 12% of teachers receive classroom budgets of more than $500.

Figure 9: Classroom Budget: All Schools

At schools that provide classroom budgets, more elementary school teachers are in the $101-$250 range (43%) than middle school teachers (35%). Middle schools are more likely to have a budget under $100. A third (33%) of middle school teachers have a budget under $100, compared with only 23% of elementary school teachers and 19% of high school teachers. The sample size of teachers receiving more than $500 is not large enough to distinguish patterns by grade level.
Elementary school teachers with classroom budgets receive less, on average, than middle and high school teachers. High school teachers have an average classroom budget of $346, much higher than elementary school teachers with a budget of $244. So, while high schools are less likely to provide teachers with a classroom budget, those that do have a budget are given more than their colleagues who teach younger students. Perhaps this is because high school teachers are purchasing for multiple sections whereas elementary school teachers generally have only one classroom of students.
Teacher Purchasing Power Through Classroom Budgets

Many wonder how much purchasing power teachers exert through their classroom budgets. If 59% of the 3.4 million public school teachers have an average classroom budget of $270, the spending potential from school-based teacher budgets is roughly $542 million.

On the one hand, vendors may be excited that there is $542 million over which teachers have decision-making authority. However, that is a small percentage of overall K-12 spending for technology and instructional materials. If, as reported by SIIA, the education technology space is $8.38 billion before the addition of print materials, classroom budgets make up less than 6% of total K-12 spending. Marketers need to decide, based on the purchasing process for their product, if it is a good use of marketing dollars to target teachers directly when their portion comprises a small piece of overall spending.

Materials Purchased with School-Based Classroom Budgets

After analyzing how much teachers have to spend with their classroom budgets, the next logical question is: What do teachers purchase with their classroom budgets? MDR asked teachers who are given a budget to rate the likelihood of purchasing various classroom materials with their school-supplied funds. Ratings were on a scale of 1 to 5, with 1 as the least likely and 5 as the most likely. Scores of 4 and 5 have been summed to indicate likelihood to purchase.

The materials most likely to be purchased with a school budget are basic classroom supplies such as paper and pencils (69%). Half (51%) of the teachers are likely to purchase print supplemental materials, but only 37% are likely to buy digital/online supplemental materials. This may indicate that teachers have more control over the choice of print supplementals and that digital supplemental materials are more likely to be a schoolwide purchasing decision. Digital purchases—core or supplemental—often involve the IT department, requiring the use of technology infrastructure, hardware, and the use of student data, necessitating a district-wide or school-wide decision and budget.
Looked at from the perspective of least-likely materials purchased with a classroom budget, Apps for the classroom and field trips/parties/entertainment are at the top of the list. Two-thirds (68%) of teachers are not likely to purchase apps with school-based classroom budgets, and field trips, parties, and entertainment are a close second (66%). Often, teachers turn to the PTA or parents to fund these extra activities. It is also possible that school-based classroom budgets come with stipulations about exactly what may and may not be covered.
Some teachers added their own responses for how they spend their classroom budgets. These responses included science lab supplies, office supplies such as printer ink, cleaning supplies, tissues, and manipulatives.
Teachers are extremely generous and often spend their personal funds on classroom materials. Almost all respondents (97%) reported spending out-of-pocket dollars (non-reimbursed) on classroom materials.

**Figure 14: Percent of Teachers Spending Personal Funds: All Schools**

Elementary (98%) and middle school (99%) teachers are slightly more likely to spend personal funds than high school teachers (95%). Teachers at medium-size (98%) and large (98%) schools are also more likely to use personal funds for the classroom than small schools (94%). As a general rule, the vast majority of teachers are tapping into their own pocketbooks to support their classroom.
Out-of-Pocket Spending per Teacher

Since almost all teachers spend personal dollars for their classrooms, teachers’ out-of-pocket expenditures can be considered an additional source for funding the purchase of classroom materials. On average, teachers spend $381 of their own money on classroom materials. This amount is $111 more per teacher on average than the amount provided from school budgets. A fourth (26%) of teachers spend between $301 to $500 each year and nearly as many (23%) invest $201 to $300 of their own money in the classroom. While roughly half of teachers spend $300 or less of their own money on classroom materials, 22% invest more than $500.

Figure 15: Personal Funds Spent: All Schools

Elementary school teachers spend more out-of-pocket dollars on their classroom. More than half (53%) of elementary school respondents, compared with 42% of middle and 40% of high school teachers spend over $300.
Of teachers who make out-of-pocket expenditures on their classrooms, elementary school teachers spend more than middle or high school teachers. Elementary school teachers spend an average of $424, middle school teachers spend $325, and high school teachers spend $336 per year. This could be because elementary school teachers are generalists and purchase for all subject areas, or they spend more decorating and creating the optimal classroom setting.
Teacher Purchasing Power for Instructional Materials Through Teachers’ Personal Funds

Using the same calculation as was done for school-based budgets, the spending power of teachers’ personal investment in classroom materials is $1.26 billion, more than double what is spent using school-based budgets. This calculation is derived from 97% of 3.4 million public school teachers spending $381 of their personal funds, roughly equal to $1.26 billion.

Because teachers spend more of their personal money than they are given by the school, tapping into teachers’ personal spending could be a marketing opportunity for some vendors. However, it is a rare teacher that is willing to spend personal dollars on high-priced items. Rather, teachers often try to maximize their investment by spreading their purchasing across more, lower-priced supplies.

Materials Purchased with Teachers’ Personal Funds

Teachers use their personal funds on different classroom materials than those bought with school-based funds. They are most likely to purchase student incentives/reward systems (73%). Classroom supplies such as paper and pencils are also likely to be purchased by 65%. Two other categories—bulletin board items and print supplemental materials—are each likely to be purchased by 53%. All of these materials are typically low-priced items. In addition, they do not require the approval of a district or school decision maker. Teachers have more authority to make decisions about items that set the classroom atmosphere such as student rewards, supplies, and bulletin boards than they do over curriculum or technology. Vendors of student incentive, classroom supply, and bulletin board items should recognize that teachers may use personal funds, and thus cater customer service and sales to teacher purchases at night and on the weekends and accept credit card payments rather than purchase orders.
Similar to school-supplied classroom budgets, teachers are least likely (rated 1 or 2) to use personal funds for apps for the classroom (62%) and field trips/parties/entertainment (51%). As already noted, app expenditures are typically covered under the technology or curriculum budget while the field trips and entertainment funds typically come from parents.
Viewing personal spending versus classroom budgets, the largest difference is in student incentives—a likely expenditure using personal funds by 73% of teachers compared with 46% using a school-provided budget. Bulletin board items also vary with 53% likely to use personal funds compared with 35% who would use classroom budgets. Teachers may feel some obligation to tie purchases made with school money directly to classroom instruction. Items used for incentives and bulletin boards benefit the classroom environment but are harder to tie to instructional impact. Print supplemental materials are just as likely to be purchased by teachers with either personal funds or school budgets—with roughly half of teachers likely to purchase with either type of fund. Print supplemental providers can tap into both personal and school budgets for the purchase of their products. This broadens the funding opportunities but also expands the marketing required to all levels of the school building.

Figure 20: Classroom Materials Most Likely to Be Purchased with Classroom Budget vs Personal Funds

EdNET Insight Survey © 2016, Market Data Retrieval.
Professional Development Purchased with Teachers’ Personal Funds

Teacher professional development has evolved to include considerably more than a school- or district-sponsored, live workshop on a teacher institute day. Present-day teacher PD is now focused on anytime, anywhere learning to help teachers as professionals, and it may include everything from live workshops and on-site coaching to online courses and degree programs, professional learning communities, online webinars, conferences, and Twitter chats. Some of these programs have associated fees while others are free.

Three-quarters (74%) of respondents to MDR’s survey use personal funds on professional development, and the amount spent ranges $100 or less (by 31%) to over $501 (by 10%). Of the teachers that spend their own money for PD, the average is $250 per year used for professional development pursuits. Continuing with the calculation that 73% of 3.4 million teachers spend $250 per year yields an estimate that teachers spend $620 million per year on professional development. As a professional development provider, it is helpful to know that there is some personal funding that teachers may be willing to apply towards your services. If you are trying to tap into personal funds, make sure the pricing targets the $250 range and lets teachers register individually rather than only as part of a school or district.

Figure 21: Personal Funds Spent on Professional Development: All Schools
The 2016 Vision K-20 Professional Learning Survey Report\(^3\) by The Education Technology Industry Network (ETIN) of SIIA confirms that educators are, in fact, going online to further their professional learning. Educators enroll in online professional learning courses when they are personally interested in a subject and want to increase their knowledge in that area. The most common online professional learning courses that educators select are courses that provide training for software and digital resources and classroom management/behavior training.

MDR’s 2016 report, *The Evolution of Professional Development to Professional Learning*, discusses the growing popularity of micro-credentials, which, because of their portability and validity, allow teachers to invest in their own professional learning. The key characteristics of micro-credentials are that they are (1) competency-based, (2) personalized, (3) on-demand, and (4) shareable. The report concludes its discussion of micro-credentials by noting an “opportunity for vendors to create and issue their own micro-credentials. This would allow providers to build programs that recognize their users, similar to the Google Certified Educator program. Staying with the Google comparison for a moment, micro-credentials are a new way to ensure that vendor products are implemented and used with fidelity. Although it does not have to be, it could also provide a new revenue opportunity for providers.”\(^4\)
Teachers use a variety of sources to gather information and purchase materials. This section explores where teachers go—physically or virtually—to find out about and purchase products, what factors influence the purchasing decision, and the role teachers play in the purchasing process.

Sources of Information About Instructional Materials and School Supplies

Respondents were asked to rank the top five sources they used during the past school year to gather information about instructional materials (i.e., workbooks, apps, software) and school supplies (i.e., pencils, art supplies). Two-thirds (67%) of teachers ranked retail store promotions at Staples, Target, or Walmart as one of their top five sources. Websites and Internet searches other than Amazon ranked second for 61% of respondents. There was a three-way tie with teacher stores (59%), Amazon (58%), and print catalogs (58%). Interestingly, direct mail promotions ranked at the bottom for teachers at 12%. This trend may indicate that teachers are overwhelmed with the volume of push marketing whether it is direct mail, email promotions, or social media. Perhaps they would prefer to control the intake of information by going to retail or teacher stores or actively searching on their own to gather information. Marketers may want to consider investing in online search, if they have not already, to respond to teachers looking on the Internet to gather information.
Respondents’ first choice for sources to gather information about instructional materials and school supplies mirrors the ranking of the top five choices in the previous figure but in a slightly different order. When teachers selected their top source of gathering information, 20% chose a retail store and 20% chose Amazon. Teachers may be visiting retail stores and Amazon for personal reasons and finding school information in the process, or vice versa. In general, the first choice rankings are dispersed across the 12 sources, indicating no one outlet that serves the majority of teachers. It is important to note that email promotional messages, sales representatives, and direct mail promotions garnered 2% or less of the top ranking. These low rankings may be a result of the fact that teachers are so busy that they do not have time to review email and direct mail promotions. It is not surprising that sales reps rank low because sales reps rarely sell directly to teachers, but concentrate their time on school and district administrators. Some teachers added in additional sources for product information such as Teachers Pay Teachers, Michaels, and Hobby Lobby.
Figure 23: Sources for Information on Instructional Materials: Ranked as First Choice

Looking at the top five sources by grade level indicates some notable patterns. Teacher stores are more likely to be a place for information gathering by elementary school teachers (66%) than high school teachers (44%). Social media is a source more often for elementary (21%) and middle school teachers (22%) than high school teachers (15%). Conversely, conventions and professional conferences are more frequently a source of information for high school teachers (40%) than elementary school teachers (27%), as are professional publications for high school teachers (40% compared with 34% for elementary school teachers). Teachers of higher grades dive deeper into their subject areas, often the focus of professional conferences and publications.
Figure 24: Top Five Sources for Information on Instructional Materials by Grade Level

- **Retail store promotions (Staples, Target, Walmart, etc.)**
  - Elementary: 67%
  - Middle: 69%
  - High: 65%

- **Amazon**
  - Elementary: 59%
  - Middle: 58%
  - High: 58%

- **Websites/Internet searches (other than Amazon)**
  - Elementary: 60%
  - Middle: 60%
  - High: 66%

- **Catalogs (print)**
  - Elementary: 56%
  - Middle: 56%
  - High: 66%

- **Teacher stores**
  - Elementary: 44%
  - Middle: 56%
  - High: 66%

- **Websites that provide reviews of education products**
  - Elementary: 34%
  - Middle: 36%
  - High: 38%

- **Conventions/Professional conferences**
  - Elementary: 27%
  - Middle: 32%
  - High: 40%

- **Professional publications (digital or print)**
  - Elementary: 34%
  - Middle: 37%
  - High: 40%

- **Social media sites (Facebook, Twitter, etc.)**
  - Elementary: 21%
  - Middle: 22%
  - High: 15%

- **Email promotional messages**
  - Elementary: 21%
  - Middle: 28%
  - High: 26%

- **Sales representatives**
  - Elementary: 9%
  - Middle: 13%
  - High: 12%

- **Direct mail promotions**
  - Elementary: 11%
  - Middle: 12%
  - High: 11%

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Years of experience also influence sources for product information also. Teachers who have been in the classroom for ten or fewer years are more likely to turn to Amazon (67%), teacher stores (63%), and social media outlets (26%) than teachers with more experience. Perhaps newer (and presumably younger) teachers are more comfortable getting product information from channels that they use in their personal lives. Teachers who have been in the profession for more than 20 years compared with those with ten years or less experience more often turn to catalogs (63% versus 50%), professional publications (41% versus 26%), and websites that review products (37% versus 29%). Teachers with the most experience have been receiving catalogs for decades and come to expect catalogs to inform them of product information. As more experienced teachers retire, there may be fewer readers of product catalogs. Commercial providers may want to adjust their catalog investment to accommodate this changing demographic.
Figure 25: Top Five Sources for Information on Instructional Materials by Years of Experience

- Retail store promotions (Staples, Target, Walmart, etc.):
  - 1-10 Years: 69%
  - 11-20 Years: 66%
  - More Than 20 Years: 66%

- Amazon:
  - 1-10 Years: 59%
  - 11-20 Years: 54%
  - More Than 20 Years: 54%

- Websites/Internet searches (other than Amazon):
  - 1-10 Years: 64%
  - 11-20 Years: 60%
  - More Than 20 Years: 60%

- Catalogs (print):
  - 1-10 Years: 50%
  - 11-20 Years: 57%
  - More Than 20 Years: 63%

- Teacher stores:
  - 1-10 Years: 56%
  - 11-20 Years: 63%
  - More Than 20 Years: 63%

- Websites that provide reviews of education products:
  - 1-10 Years: 36%
  - 11-20 Years: 37%
  - More Than 20 Years: 37%

- Conventions/Professional conferences:
  - 1-10 Years: 31%
  - 11-20 Years: 33%
  - More Than 20 Years: 33%

- Professional publications (digital or print):
  - 1-10 Years: 26%
  - 11-20 Years: 35%
  - More Than 20 Years: 41%

- Social media sites (Facebook, Twitter, etc.):
  - 1-10 Years: 20%
  - 11-20 Years: 17%
  - More Than 20 Years: 17%

- Email promotional messages:
  - 1-10 Years: 25%
  - 11-20 Years: 24%
  - More Than 20 Years: 24%

- Sales representatives:
  - 1-10 Years: 11%
  - 11-20 Years: 9%
  - More Than 20 Years: 9%

- Direct mail promotions:
  - 1-10 Years: 15%
  - 11-20 Years: 6%
  - More Than 20 Years: 6%

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Social Media Usage for Professional Purposes

Teachers—particularly the younger ones—are often on social media for personal use, but the data in the previous section indicates that social media is not one of the popular sources for teachers interested in gathering information. Just how frequently are teachers visiting various social media—Facebook, Twitter, Pinterest, LinkedIn, Instagram, and YouTube—for professional use?

YouTube is the most visited with 42% of respondents visiting at least weekly. Teachers turn to YouTube during class time for instructional videos, for homework review, or for use in the flipped classroom where students watch videos at home and then do coursework in class. Pinterest is next, with 31% of teachers using the site weekly or more to find classroom resources, inspirational posters, activities for review, lesson plans, and more. Facebook is at 29%. Teachers use Facebook to connect with colleagues within their school or district and to find professional communities often managed by publishers, non-profits, or organizations serving specific teacher and learner communities such as the National Education Association. Ten percent of teachers use Twitter weekly or more to connect with special interest groups within teaching and learning, to communicate news, articles, share information, and find like-minded educators.

Figure 26: Social Media Site Visits for Professional Reasons—Weekly or More Often
Eighty-four percent of respondents never use Instagram. Next, Twitter and LinkedIn are tied with never being used by 77% of teachers. As marketers, there is a long way to go to engage teachers on these social media sites. It is unclear if teachers are not fundamentally interested, if they simply do not have time, or if these sites have not found the right use cases to engage teachers.

**Figure 27: Frequency of Social Media Site Visits for Professional Reasons**

There are some differences to note by grade level and years of experience for those using social media sites weekly or more:

- **Facebook**
  - More elementary school teachers (31%) use Facebook once or more per week for professional use than high school teachers (24%).

- **Pinterest**
  - More elementary (42%) and middle school (21%) teachers use Pinterest one or more times per week than high school teachers (14%).
  - Newer teachers—those with 1 to 10 years (38%) or between 11 and 20 years (35%)—use Pinterest weekly or more versus teachers with more than 20 years of experience (24%).

- **YouTube**
  - More than half (52%) of teachers with up to 10 years of experience and 43% of teachers with 11 to 20 years of experience use YouTube at least weekly in contrast to 37% of teachers with at least 20 years of experience.

Overall, elementary school teachers and those with relatively few years of experience are more likely to use Facebook, Pinterest, and YouTube, perhaps because it is more a part of their personal life that they can easily integrate with their professional life or because the content is more appropriate for the lower grade levels.
Figure 28: Social Media Site Visits for Professional Reasons—Weekly or More Often by Grade Level

Responses 4 and 5 are defined as Substantial.
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Figure 29: Social Media Site Visits for Professional Reasons—Weekly or More Often by Years of Experience

Responses 4 and 5 are defined as Substantial.
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Sources to Purchase Instructional Materials and School Supplies

Teachers generally go to the same places to purchase as they do to gather information. Retail store promotions were in the top five sources to purchase classroom materials for 71% of respondents, more than any other source. Teacher stores were next, tied with websites/Internet searches at 62%. The top five round out with Amazon (60%) and print catalogs (58%). It is important to note that the top five sources are a mix of brick and mortar stores and online retailers, thus indicating the relevancy of more established channels, while online retailers have emerged to almost equal their strength.

The top source used to purchase instructional materials is Amazon (23%), followed closely by retail stores such as Staples, Target, and Walmart (22%). Again, this indicates the strength of both online and traditional retail channels. It also indicates that teachers turn to sources that they probably frequent in their personal life—Amazon and big box stores—to purchase classroom materials. Perhaps this saves teachers time in their busy lives by doing both personal and professional shopping at the same time. Commercial providers of physical product may want to consider big box retailers as product distributors as they are a strong source for purchased instructional materials.
Teachers by grade level follow a similar pattern to purchase products as they do when gathering information. Elementary school teachers are more likely to purchase from teachers stores (68%) than high school teachers (52%). On the other hand, high school teachers are more likely to purchase at conventions and professional conferences (36%) than elementary school teachers (24%).
Teachers by years of experience also follow a similar pattern for purchasing products as they do for gathering information. Teachers with one to ten years of experience favor Amazon (68%), teacher stores (68%), and website/Internet searches (69%) over those with longer experience. On the contrary, those who have been teaching for more than 20 years are more likely to turn to catalogs (62%), websites that provide reviews of education products (36%), professional publications (32%), and direct mail promotions (17%). Catalogs were one of the first vehicles used to sell to teachers, so it is a very familiar medium for the most experienced teachers. These teachers more often represent returning customers who receive very targeted promotions. As more experienced teachers retire, publishers will likely see a drop in catalog response, requiring a scaling back of their catalog mailing plans.
**Figure 33: Top Five Sources Used to Purchase Instructional Materials by Years of Experience**

<table>
<thead>
<tr>
<th>Source</th>
<th>1-10 Years</th>
<th>11-20 Years</th>
<th>More Than 20 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon</td>
<td>61%</td>
<td>55%</td>
<td>68%</td>
</tr>
<tr>
<td>Retail store promotions (Staples, Target, Walmart, etc.)</td>
<td>69%</td>
<td>69%</td>
<td>69%</td>
</tr>
<tr>
<td>Catalogs (print)</td>
<td>62%</td>
<td>58%</td>
<td>62%</td>
</tr>
<tr>
<td>Teacher stores</td>
<td>68%</td>
<td>63%</td>
<td>68%</td>
</tr>
<tr>
<td>Websites/Internet searches (other than Amazon)</td>
<td>69%</td>
<td>59%</td>
<td>69%</td>
</tr>
<tr>
<td>Websites that provide reviews of education products</td>
<td>36%</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>Conventions/Professional conferences</td>
<td>27%</td>
<td>28%</td>
<td>27%</td>
</tr>
<tr>
<td>Professional publications (digital or print)</td>
<td>32%</td>
<td>29%</td>
<td>32%</td>
</tr>
<tr>
<td>Social media sites (Facebook, Twitter, etc.)</td>
<td>17%</td>
<td>16%</td>
<td>17%</td>
</tr>
<tr>
<td>Email promotional messages</td>
<td>19%</td>
<td>20%</td>
<td>19%</td>
</tr>
<tr>
<td>Sales representatives</td>
<td>9%</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>Direct mail promotions</td>
<td>17%</td>
<td>10%</td>
<td>11%</td>
</tr>
</tbody>
</table>

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Factors Influencing the Purchase of Instructional Materials

The MDR survey asked teachers to rate the most important factors influencing their purchasing decision of instructional materials on a scale of 1 to 5, with 1 as least important and 5 as most important. The results summing the responses of 4s and 5s are considered “most important” in the discussion and figures in this section.

Without question, ease of use is the most important factor (90%). Teachers are busy and are continually asked to learn new programs, curriculum, and pedagogy. Ensuring any new material is easy to use hastens the time to implement in the classroom, making it better for the teacher and her students. Teachers are strongly influenced by word of mouth, so it is no surprise that positive reviews/evaluations and recommendations of other educators are tied as the second most influential for 75% of teachers surveyed. Only half of respondents said that a digital format was an important factor in their purchasing decision. Because there are so many materials available in a digital format now, it is no longer a novelty to find reputable digital resources. For the creators of instructional materials that are trying to find the right bells and whistles to differentiate their products, recognize that teachers do not need fancy features. Really, what they want is a product that is easy to learn, easy for classroom management, and easy to integrate into their curriculum.

Figure 34: Most Important Factors Influencing the Purchase of Instructional Materials

Responses 4 and 5 are defined as Most Important.

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Differences in the importance of factors influencing the purchase of instructional materials can be seen by grade level. Elementary (91%) and middle (93%) school teachers prioritize ease of use over high school teachers (87%). Teachers of younger students need products to be easier to use so younger students can learn the programs faster, whereas high school students may be quicker to grasp how to use new materials. Seventy-two percent of elementary school teachers believe research based is an important factor versus 61% of high school teachers. Reputation of a company is also more of a priority for elementary school teachers (68%) than high school teachers (58%), as is whether the material includes an assessment component (64% versus 54%, respectively). In general, a greater number of elementary school teachers find all of the factors more important than do high school teachers. The only exception is that middle school teachers think a digital format is more important (56%) than do elementary school teachers (47%). The promise of engagement for digital products is particularly important when teaching often disengaged middle schoolers.

Figure 35: Most Important Factors Influencing the Purchase of Instructional Materials by Grade Level

- **Ease of use**: Elementary 91%, Middle 93%, High 87%
- **Has had positive reviews/evaluations**: Elementary 77%, Middle 70%, High 70%
- **Recommended by other educators**: Elementary 78%, Middle 67%, High 67%
- **Research based**: Elementary 64%, Middle 61%, High 61%
- **From a well-known, reputable company**: Elementary 68%, Middle 58%, High 58%
- **Includes an assessment component**: Elementary 64%, Middle 60%, High 60%
- **Is in digital format**: Elementary 47%, Middle 56%, High 56%
- **Is on approved state/district/school list**: Elementary 46%, Middle 46%, High 46%
- **Supported by testimonials and case studies from other districts/schools**: Elementary 35%, Middle 47%, High 47%

Responses 4 and 5 are defined as Most Important. EdNET Insight Survey © 2016, Market Data Retrieval.
Teachers’ Role in the Purchase Process

While teachers are the primary users of various instructional materials (as well as—of course—their students), they may not necessarily be the purchasers. Therefore, it is critical to know the teachers’ involvement in the purchasing process. Survey respondents were asked to describe their role in buying various materials: final decision maker, participant on the purchasing committee, influencer who reviews products, or not at all involved.

Teachers are the most involved in purchasing school supplies with 23% as final decision makers and 18% more participating on purchasing committees. While only 6% of teachers make the final decision on print or digital textbooks, 27% are on the purchasing committee and 28% have influence. Therefore, three-fifths of teachers are involved at some level in textbook choices. Print and digital supplemental materials follow a similar pattern, although more teachers have final authority over supplementals: 12% have final decision-making power, 23% participate in committees, and 31% are influencers. Teachers are least involved in the purchase of instructional hardware with 66% of respondents not at all involved. Salespeople of instructional hardware appropriately target administrators because these purchases are typically made at the school or district level. Interestingly, almost half of all teachers (49%) have no involvement in the purchase of professional development materials and programs. Perhaps teachers’ lack of involvement in this decision making is partly responsible for teacher frustration with much of district- and school-provided professional development and for less effective professional development results.

Figure 36: Educators’ Role in Purchasing Materials and Programs

<table>
<thead>
<tr>
<th>Category</th>
<th>Final decision maker</th>
<th>Participate on purchasing committee</th>
<th>Influencer who reviews products</th>
<th>Not at all involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>School supplies</td>
<td>23</td>
<td>18</td>
<td>20</td>
<td>39</td>
</tr>
<tr>
<td>Supplemental materials (print and digital)</td>
<td>12</td>
<td>23</td>
<td>31</td>
<td>35</td>
</tr>
<tr>
<td>Formative assessments</td>
<td>9</td>
<td>17</td>
<td>24</td>
<td>50</td>
</tr>
<tr>
<td>Apps in the classroom</td>
<td>9</td>
<td>15</td>
<td>28</td>
<td>49</td>
</tr>
<tr>
<td>Textbooks (print and digital)</td>
<td>6</td>
<td>27</td>
<td>28</td>
<td>39</td>
</tr>
<tr>
<td>Professional development materials/programs</td>
<td>18</td>
<td>29</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>Instructional hardware</td>
<td>12</td>
<td>19</td>
<td>66</td>
<td></td>
</tr>
</tbody>
</table>

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Since teachers do not have very much final purchasing authority, the following figure focuses on what impact teachers have. It sums the percentage of teachers who are influencers who review products or participate on purchasing committees by grade level. Approximately three-fifths of middle and high school teachers are involved in the purchase of textbooks and supplemental materials, compared with half of elementary school teachers. It might be that middle and high school teachers, often subject-area specialists, are perceived as having more to contribute to curriculum purchases than elementary school teachers who are generalists.

**Figure 37: Influences/Participates in Purchasing of Materials and Programs by Grade Level**

- **Textbooks (print and digital)**
  - Elementary: 49%
  - Middle: 61%
  - High: 62%

- **Supplemental materials (print and digital)**
  - Elementary: 49%
  - Middle: 59%
  - High: 57%

- **Professional development materials/programs**
  - Elementary: 46%
  - Middle: 46%
  - High: 50%

- **Formative assessments**
  - Elementary: 41%
  - Middle: 39%
  - High: 45%

- **Apps in the classroom**
  - Elementary: 41%
  - Middle: 44%
  - High: 47%

- **School supplies**
  - Elementary: 37%
  - Middle: 42%
  - High: 38%

- **Instructional hardware**
  - Elementary: 26%
  - Middle: 37%
  - High: 36%

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Focusing next on teachers’ involvement in ed tech purchases, a 2014 Digital Promise study\(^2\) of district procurement practices for personalized learning technology tools indicates that teachers’ degree of involvement in ed tech procurement is 50%. While district officials say they want teacher input for purchasing decisions, only principals are strongly supportive of decentralized purchasing. Just 28% of superintendents agree with giving greater authority to individual schools and educators, concerned that decentralized decision-making leads to a loss of quality control and fragmented instructional practices. Thus, vendors should recognize that technology purchases are more often a district decision with less teacher involvement.

There is an interesting interplay between teachers as the end users of instructional materials, yet being only partially involved in the purchasing process. This dynamic is challenging for vendors and is the cause of bifurcated marketing strategies with salespeople selling directly to districts while social media, direct mail, and emails are often more targeted towards teachers to build grass roots awareness.
There are so many instructional materials available to teachers. Sorting through what to use can be challenging. In addition to vetting materials, teachers are increasingly creating their own resources. How often are teachers using materials from various sources and how much time are they spending on various activities are questions that will be answered in the section below.

**Frequency of Use**

The MDR survey asked teachers how frequently they use instructional materials from various sources. Two-thirds (66%) of respondents use materials they developed themselves or that were developed by staff at their school at least once per week, more often than they use materials from any other source. Sixty-two percent of teachers use materials found free on the Internet other than Open Educational Resources (OER) at least weekly. Fifty-five percent use digital instructional materials weekly or more frequently. Only 19% of teachers use OER at least weekly.

The most remarkable conclusion from this data is that the majority of instructional materials used have no direct cost—having been developed by the teacher or other school personnel, found free on the Internet, developed by the state, or made available as open educational resources. Of course there is a cost in terms of time for teachers to develop or for OER materials to be modified, but there are an overwhelming number of free materials in use weekly. Free has always been available to teachers through teacher magazines, but the sheer volume and accessibility of free on the Internet has made free a viable alternative to paid materials. There was once a theory that free materials were of low quality. However, teachers are finding valuable resources on free websites such as EngageNY, Khan Academy, and LearnZillion, among others. Publishers of instructional materials have reason to perceive free materials as very real competition to their businesses. Publishers need to continue to innovate and focus on what makes their content unique to justify the price tag.
The following figure shows the frequency of use—ranging from daily to never—for instructional materials from different sources. Ninety-three percent of teachers use materials they or staff from their school develops at least monthly. This is the most likely source for frequent material usage. Over the last seven years, as schools and districts transitioned to the Common Core or their state’s chosen standards system, they were challenged to find resources that adequately met their needs. Therefore, they turned inward, resulting in educators becoming curriculum developers. Now, years into the Common Core, it does not appear that teachers will stop being their own curriculum writers.
A study released in 2016 by the RAND Corporation, *Implementation of K-12 State Standards for Mathematics and English Language Arts and Literacy* confirms the finding that teachers are creating their own curriculum. The RAND study shows that almost all K-12 math and English/language arts teachers are using materials that they created themselves or that their district created.\(^6\)

Ninety-six percent of teachers use non-OER free materials found on the Internet monthly or more. The Internet has become a distribution channel for resources, albeit a challenging one that may provide good materials but requires a significant investment in time and patience to search and vet. Perhaps that explains the popularity of Teachers Pay Teachers, a community of educators that form the largest open marketplace where teachers share, sell, and buy original educational resources. Teachers can trust that the resource is from a teacher who has had success using the resource in her classroom, and many of the two million resources on the site are free to download.

Almost half of teachers (47%) surveyed never use open education resources. This is despite the U.S. Department of Education’s initiative launched in October of 2015 to #GoOpen, a campaign to encourage states, school districts, and educators to use openly licensed educational materials to ensure that all students—no matter their zip code—have access to high-quality learning resources. The initiative and OER may gain more traction in the 2016-2017 school year, although it is still unclear how much enthusiasm there will be to curate and modify OER and whether OER will actually level access. Nonetheless, the expectations of usage of OER are high—at least in some quarters. A 2016 study done by the Consortium for School Networking (CoSN) of IT leaders shows that 99% expect to incorporate digital OER over the next three years, and 45% expect their digital content to be at least 50% OER in that time frame.\(^7\)
One strong example of an OER initiative that helps curation for teachers is the Tennessee Digital Resources Library, the largest state library of digital resources, created over an 18-month period by 58 Tennessee teachers. The Tennessee Digital Resources Library was created to help school districts use and share open educational resources, to help teachers deliver content in the classrooms, and to help bridge the digital divide throughout the state. The curated digital materials are meant to replace textbooks, offering districts significant cost savings.6

To support #GoOpen, Amazon launched Amazon Inspire at ISTE 2016. This free service helps educators with the search, discovery, and distribution of free digital educational resources. If finding good resources quickly and efficiently is a roadblock to using OER, then Amazon is certainly a vendor that is well-positioned to leverage its expertise in strong user interface and search to help ease these challenges.

By grade level, elementary school teachers (65%) are more likely to use materials found free on the Internet weekly or more often than high school teachers (58%). Elementary school teachers (59%) also are more likely to use commercial materials provided by the school, district, or state than middle school (41%) and high school teachers (43%).

Figure 40: Source of Instructional Materials Used Weekly or More Often by Grade Level

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By school size, small schools (23%) are more likely to use OER at least weekly than larger schools (ranging from 16% to 19%). Small (50%), medium (54%), and large (54%) schools are more likely to use commercial materials weekly or more frequently than very large schools (39%). Very large schools use commercial materials but are more apt to use materials developed by staff at their school on a weekly or more basis (64%, not shown in Figure 41).

**Figure 41: Source of Instructional Materials Used Weekly or More Often by School Size**

Open Education Resources (OER)  
- Small: 19%  
- Medium: 16%  
- Large: 16%  
- Very Large: 16%

Commercial materials provided by your school/district/state  
- Small: 39%  
- Medium: 54%  
- Large: 54%  
- Very Large: 50%

Materials found free on the Internet (other than OER)  
- Small: 61%  
- Medium: 57%  
- Large: 65%  
- Very Large: 65%

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Time Spent on Various Tasks

Knowing that teachers have many non-teaching responsibilities, such as creating and vetting materials, it is important to dive deeper into how teachers spend their time. Teachers were asked how many hours per week they spend creating instructional resources, searching for free and paid-for instructional resources, and participating in online professional learning opportunities.

Figure 42: Hours per Week Spent on Tasks

More than two-thirds (70%) of teachers spend four or more hours per week creating instructional resources. One in ten (11%) spend ten or more hours per week creating classroom material. Vendors in the publishing space should not underestimate the time teachers spend in creating materials nor undervalue the teacher, school, and district as competitors for their products. The introduction of the Common Core and the challenge educators experienced finding appropriate resources during the transition left districts feeling that they had to do it themselves. Publishers should work with users of their materials to understand why educators have the need to create their own materials: Is it cost? Is there a curricular need that is not met? Is it a systems integration concern that some high quality materials do not populate in the district’s LMS? Armed with answers to these questions, publishers need to work with teachers to solve these concerns. It is to both the publishers’ and the teachers’ advantage for publishers to create curriculum so teachers can focus on teaching.

Fifty-two percent of teachers spend four or more hours per week searching for free classroom materials. Less than a quarter (23%) spend the same time looking for paid-for resources. Perhaps fewer teachers are spending time on paid-for resources because they do not have a large enough budget or the purchasing authority to buy. This statistic is a challenge for marketing professionals who spend a lot of time optimizing search so their materials are found. If there is a price tag associated with the resource, educators may not be satisfied with the search results. Accordingly, many publishers have created resource centers of free materials on their websites to build relationships and encourage future purchases.
To make better sense of the time commitment that teachers are devoting to these various tasks, it is helpful to see the average number of hours spent on each task. On average, teacher spent 5.2 hours each week creating instructional resources, and 4.3 hours searching for free materials. Teachers spend 3 more hours per week searching for paid-for resources. In total, teachers spent more than 12 hours each week creating or searching for materials, either free or for a fee. If there are four weeks in a month, teachers spent 50 hours each month on these tasks, taking away significant time from analyzing data, communicating with parents, and diagnosing specific student needs.

Teachers also spend 2.9 hours per week participating in online professional learning opportunities. This is an important statistic for professional development providers to understand because traditional PD day-long workshops are being somewhat displaced by learning opportunities that are online and distributed throughout the week when convenient for the teacher.
Looking more closely at time spent on various tasks by grade level, years of experience, and school size (Figures 44, 45, and 46):

- Middle (76%) and high school (73%) teachers are more likely to spend more time creating their own instructional resources than elementary school teachers (65%), probably related to the focus on deeper content knowledge in the higher grades.

- There is a difference in hours spent searching for free materials by teachers from schools of different sizes. Teachers at small (56%), medium size (50%), and large (57%) schools spend four or more hours per week searching, compared with teachers at very large schools (38%). Perhaps these resources are curated centrally in larger schools so individual teachers do not have to spend as much time searching.

- Elementary school teachers (27%) are more likely to spend four or more hours searching for paid resources than high school teachers (16%).

- Teachers with less experience (26%) are more likely to spend four or more hours per week in online professional learning opportunities in contrast to teachers who have been teaching for more than 20 years (18%).
**Figure 44: Four or More Hours per Week Spent on Tasks by Grade Level**

- Creating instructional resources (activities, quizzes, etc.):
  - Elementary: 65
  - Middle: 76
  - High: 73
- Searching for free instructional resources to use in my classroom:
  - Elementary: 53
  - Middle: 55
  - High: 48
- Searching for paid-for instructional resources to use in my classroom:
  - Elementary: 19
  - Middle: 16
  - High: 27
- Participating in online professional learning opportunities:
  - Elementary: 20
  - Middle: 21
  - High: 21

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**Figure 45: Four or More Hours per Week Spent on Tasks by Years of Experience**

- Creating instructional resources (activities, quizzes, etc.):
  - 1-10 Years: 72
  - 11-20 Years: 71
  - More Than 20 Years: 67
- Searching for free instructional resources to use in my classroom:
  - 1-10 Years: 52
  - 11-20 Years: 55
  - More Than 20 Years: 51
- Searching for paid-for instructional resources to use in my classroom:
  - 1-10 Years: 22
  - 11-20 Years: 24
  - More Than 20 Years: 22
- Participating in online professional learning opportunities:
  - 1-10 Years: 26
  - 11-20 Years: 21
  - More Than 20 Years: 18

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There is no doubt that teachers spend more time than ever creating and searching for materials. This trend serves as very real competition to publishers of instructional materials. It poses a great challenge to vendors and forces them to rethink their value proposition to differentiate their offering and justify the prices they charge.
In recent years, there has been considerable attention paid to various newer classroom pedagogies and other approaches to teaching and learning—such as flipped classrooms, the maker movement, blended learning, the STEM method, BYOD, and project-based learning. The MDR survey attempts to quantify teacher usage of these various classroom approaches to see how fully implemented they are in classrooms across the country. Respondents ranked their usage on a scale of 1 to 5, where 5 is fully implemented. A score of 4 or 5 indicates substantial implementation.

Project-based learning (PBL) is the most substantially implemented (43%) method of any of the options included in the survey. (See Figures 47 and 48.) Eighty-three percent of respondents have at least experimented with project-based learning. The Buck Institute for Education defines project-based learning as “a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an engaging and complex question, problem, or challenge.”\(^9\) There is a big movement towards project-based learning to improve student engagement and build critical thinking and collaboration skills to prepare students for the jobs of tomorrow. Middle school (48%) and high school (52%) teachers have more substantially implemented PBL than elementary school teachers (37%) (Figure 49). Teachers with fewer years of experience are more likely to substantially implement PBL (48%) than teachers with over 20 years of experience (40%) (Figure 50). Perhaps this is a mindset issue. Long-time teachers tend to do the same activities over and over. PBL is a departure from standard operating procedure. It is also possible that PBL is a newer teaching method and has been better incorporated into methods courses at schools of education over the past decade than 20 or more years ago.

STEM methods are next, with 28% of teachers substantially implementing this approach. Nearly two-thirds (65%) have incorporated some STEM activities into their classroom. STEM stands for science, technology, engineering, and mathematics. STEM (or STEAM, with the incorporation of arts) has gained significant momentum in the last few years driven by the same commitment to ensure students are college, career, and life ready to pursue jobs in the much-needed science and technology fields. Project Lead the Way is an example of a popular non-profit serving STEM interests by providing K-12 STEM curriculum as well as professional development. They have more than 9,000 programs in over 8,000 schools across the U.S.\(^10\)
Almost a quarter (23%) of respondents have substantially implemented blended learning, while 62% have used blended learning to some degree. Blended learning is more substantially implemented for teachers with relatively low or moderate levels of experience (both groups at 27%) than for teachers with the most experience (18%). Blended learning is a method of teaching in which a student learns in part online with some level of student control over time, place, path, and/or pace of learning. Blended learning started out as a way to include some face-to-face interactions in traditionally fully online programs but has gained momentum in the last five years or so as districts have attempted to vary their offering to include alternate methods to engage and retain students in the district. Some strong players in the blended learning space are Apex Learning and Edgenuity.\footnote{11}

The maker movement is an offspring of the popular Maker Faires that began in 2006 in San Mateo, California, in which a group of people got together to display what they had made. Now tech enthusiasts, crafters, educators, tinkerers, hobbyists, engineers, science clubs, authors, artists, students, and commercial exhibitors attend. These Maker Faires are held throughout the world, with 215,000 people attending in San Francisco and New York City alone in 2014.\footnote{12} Since then, there has been excitement to create maker spaces in schools to engage students, build college and career readiness, and improve problem solving and critical thinking. As part of a maker space, students may design their own video games, build robots, use a 3-D printer to build a castle, mix squishy circuit dough on a hot plate, or sew a wearable computer. While there is a lot of energy at the school and district level for the maker movement, it is often not classroom teachers that are leading the way. Frequently, the maker space is led by the librarian or the media specialist or STEM teachers in middle or high schools. Therefore, it is not surprising that only 5% of respondents have substantially implemented the maker movement in their classroom and only 19% have done some work with their students.

BYOD, or Bring Your Own Devices, is only substantially implemented by 11% of respondents. This is surprisingly low given the media hype. BYOD is less likely to be implemented in elementary school classrooms (6%) than in middle (19%) and high schools (15%) as younger kids do not own personal devices. As reported in State of the K-12 Market 2015: Part III, MDR’s survey of district-level technology directors yielded a similar pattern of results. The survey analyzed BYOD implementation in 75% to 100% of schools by grade level, with 11% of elementary schools in their district meeting this criterion, followed by 19% in middle schools, and 29% in high schools.\footnote{13}
Figure 47: Degree of Implementation of Classroom Methods

Figure 48: Substantial Degree of Implementation of Classroom Methods

Responses 4 and 5 are defined as Substantial.

EdNET Insight Survey © 2016, Market Data Retrieval.
Figure 49: Substantial Implementation of Classroom Methods by Grade Level

Responses 4 and 5 are defined as Substantial.
EdNET Insight Survey © 2016, Market Data Retrieval.
Figure 50: Substantial Implementation of Classroom Methods by Years of Experience

Responses 4 and 5 are defined as Substantial. EdNET Insight Survey © 2016, Market Data Retrieval.

Overall, teachers are experimenting with newer teaching methods, but there is not one clear approach that has substantially penetrated the classroom. As is the case with most innovations, a small group of enthusiasts are leading the way, and the good ideas slowly catch on as teachers spread the word and share best practices for implementing these new methods. Publishers and other providers should watch these trends, but only attempt to serve them if their materials are genuinely central to the mission and pedagogy of these new teaching approaches.
CHAPTER 7
Technology

The final section of this report explores technology—specifically focusing on features that teachers value in digital instructional materials, availability and adequacy of technology, and challenges of using apps in the classroom.

Features of Digital Instructional Materials and Assessments

Over the past decade, there has been strong momentum toward all things digital. With the implementation of state assessments delivered online, districts invested heavily in classroom technologies and devices for the delivery of these assessments. Now these classroom devices are available during the rest of the year for researching, collaborating, doing group projects, viewing online videos and lessons, and using digital textbooks. With this big push to implement technology in the classroom, there has been a growing interest in digital instructional materials.

MDR asked teachers the value they place on various features of digital instructional materials and assessments according to a high, medium, or low rating. Overall, teachers placed strong value on all of the features in question with more than half rating every feature as high value. Four of five teachers (79%) report increased student engagement as a high value feature of digital instructional materials. Students perceive technology as entertaining and an integral part of their life outside of the classroom, so teachers want to leverage that interest with digital instructional materials. Two-thirds (66%) rate the ability to implement personalized learning as a high value. Personalized learning can be defined as customized learning paths for each child based on strengths, gaps, and interests. Almost three-fifths (59%) put high value on the speed of receiving student performance results. Increased student collaboration and the quality of reports to inform instruction are almost tied at 55% and 54%, respectively. As a developer of education products, it is important to know that student engagement and personalized learning are not just buzz words. Teachers place real value on these features and are looking for digital materials to deliver them.

Some additional valued features that teachers wrote in on the survey are ease of use, ease of access, ease of importing, and the ability to modify a lesson. A few teachers commented that they do not value or do not have access to digital materials. It is an important reminder at a time when broadband and wireless access seems ubiquitous to some, that it is still a very real challenge in other schools.
Digital materials that increase student engagement are more valued by elementary school teachers (82%) than high school teachers (73%). Student engagement is a bigger concern for younger students who have varied attention spans. Teachers with 10 or fewer years of experience (85%) also placed high value on engagements versus 76% for teachers with 20 or more years of experience. Classroom management is always a challenge for newer teachers so finding ways to engage students can help alleviate behavior concerns. Related to student engagement is student collaboration, which is more valued for teachers with the lowest and (63%) and medium (58%) experience levels than teachers with more than 20 years of experience (50%).

Elementary school teachers place a higher value on digital instructional materials with personalized learning (69%), compared with high school teachers (60%). Teachers with low and medium levels of experience (69%) also value personalized learning more than those with more than 20 years of experience (61%). Personalized learning is a newer trend in education and, as a result, may not be as valued by teachers who have been teaching for a longer period of time, or maybe more experienced teachers feel that they have enough experience to personalize learning without technology.

Similar to the value placed on the other trends surveyed, the quality of reports to inform instruction is more valued by elementary school teachers (59%) than high school teachers (45%). Teachers with 1 to 10 years of experience (61%) also value reports to inform instruction more than the most experienced teachers (51%). Smaller (55%) and middle-sized (59%) and large (55%) schools, perhaps unable to invest in data analytics systems, are more likely to highly value this feature than very large schools (43%).
Figure 52: Features Valued as High in Digital Instructional Materials by Grade Level

- Increased student engagement: Elementary 82%, Middle 73%, High 79%
- Ability to implement personalized learning: Elementary 69%, Middle 60%, High 55%
- Speed of receiving student performance results: Elementary 60%, Middle 59%, High 55%
- Increased/improved student collaboration: Elementary 55%, Middle 56%, High 55%
- Quality of reports to inform instruction: Elementary 53%, Middle 59%, High 45%

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Figure 53: Features Valued as High in Digital Instructional Materials by Years of Experience

- Increased student engagement: 1-10 Years 85%, 11-20 Years 80%, More Than 20 Years 76%
- Ability to implement personalized learning: 1-10 Years 69%, 11-20 Years 69%, More Than 20 Years 61%
- Speed of receiving student performance results: 1-10 Years 56%, 11-20 Years 63%, More Than 20 Years 57%
- Increased/improved student collaboration: 1-10 Years 63%, 11-20 Years 58%, More Than 20 Years 50%
- Quality of reports to inform instruction: 1-10 Years 61%, 11-20 Years 55%, More Than 20 Years 51%

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Availability of Classroom Technologies

As was discussed in the section on Instructional Resources: Time and Frequency, 55% of teachers use digital instructional materials weekly or more often. What technologies are available to access these digital instructional materials?

Eighty-two percent of teachers have access to a reliable wireless network. This is a significant improvement from years ago. Technology directors have chosen wireless networks as the highest priority initiative for the last four years according to MDR’s survey of technology directors across the country from the State of the K-12 Market Report for 2012 through 2015. It looks like that investment has paid off as four fifths of teachers have working wireless networks.

Two-thirds of teachers (66%) have a printer in their classroom. This makes it much easier for students to print out papers, conduct peer reviews of writing, and produce a physical end product. Teachers can also print out directions, review materials, or assessments without going to a computer lab or the teacher’s lounge. The accessibility of a printer makes teachers’ and students’ lives easier.

The next three most prevalent technologies are different vehicles used to engage an entire class at once with the ability to project an image, document, or quiz in front of the room. Two fifths to half of teachers have access to a document camera (54%), an interactive whiteboard (53%), and an interactive projector (41%). The accessibility of interactive whiteboards at the classroom level is a bit lower than is perceived by 68% of district technology directors who rated their implementation as substantial in MDR’s State of the K-12 Market 2015 report. The perception of the implementation of
document cameras is similar for 55% technology directors as teachers. For vendors of these technologies, there is room for further market penetration. For other companies that expect their product to be used with a front of the class technology such as these, it is important to note that only about half of classrooms are equipped with such technologies. Commercial providers may want to consider use cases for their products when teachers do not have these technologies available.

The three technologies that are the least likely to be available in classrooms relate to access to computing devices. Thirty-eight percent of teachers have consistent access to a cart with a classroom set of devices, 28% have a work station with three to six devices for students to share, and 23% have a device for each student. While this is nowhere near a fully one-to-one setup, considering all of the different configurations of computers, a large majority of students have access to a device for at least part of the day. Products with both an online and print component might be desirable for the classrooms without constant access to student devices as students could complete part of the program online and part on paper as they rotate.

Figure 55: Technologies Available in Classrooms.

<table>
<thead>
<tr>
<th>Technology</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliable wireless network access</td>
<td>82%</td>
</tr>
<tr>
<td>A printer</td>
<td>66%</td>
</tr>
<tr>
<td>A document camera</td>
<td>54%</td>
</tr>
<tr>
<td>An interactive whiteboard (IWB)</td>
<td>53%</td>
</tr>
<tr>
<td>An interactive projector</td>
<td>41%</td>
</tr>
<tr>
<td>Consistent access to a cart with a classroom set of devices</td>
<td>38%</td>
</tr>
<tr>
<td>I don’t have 1:1 but I have a personal work station and 3-6 devices for students to share</td>
<td>28%</td>
</tr>
<tr>
<td>1:1 (i.e., every student has his/her own device)</td>
<td>23%</td>
</tr>
</tbody>
</table>

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Variations by grade level are worth noting. Document cameras are more available in elementary school classrooms (59%) than those in high schools (44%). Perhaps their lower price lends them to be purchased more for younger grades. Elementary school teachers (36%) are also more likely to have three to six devices at a station than high school teachers (16%). The station model works really well in elementary classes that have more flexibility in the length of time used on project work. High school classes are bound by tighter bell schedules in which a rotation model of computer use does not always allow all the students to cycle through an activity. More often, middle (28%) and high school (31%) classrooms have one-to-one devices, while only 18% of elementary school classes have a device for each child.

BYOD was not a specific topic addressed in this part of the teacher’s survey, but readers should be reminded that between 15% and 19% of the high and middle school teachers indicated that BYOD was substantially implemented in their classrooms. Moderate implementation (rated 3 on the 5-point scale) adds another 9% to 13% of middle and high school classrooms to the BYOD universe—at least some of the time. This adds another layer of challenges to developers of digital materials for the education marketplace. A 2016 MDR EdNET Insight Report, *Multiple Student Devices: Challenges Facing Providers*, identifies current issues in dealing with end-users with any combination of smartphones, iPads, tablets, laptops, desktops, Chromebooks, or whatever. These challenges include dissimilar industry standards (including competing approaches to improve the rostering of students into digital products), security/student privacy concerns, and a range of design and technology issues. Teachers are clearly on the front lines of dealing with the challenges of BYOD, but they can also become champions of good products that are easy to manage and be used on a variety of devices.\textsuperscript{16}
Adequacy of Classroom Technologies

Availability of the technology provides a necessary backdrop to understanding teachers’ perspectives on the adequacy of the technology. Teachers were asked to rate the adequacy of the overall instructional technology (i.e. student devices, presentation systems and tools, network speed and bandwidth) on a scale of 1 to 5 in which 1 is inadequate and 5 is state of the art. The average response was a 3.1 meaning the adequacy of the overall technology is right in the middle between inadequate and state of the art. More than a third (37%) of teachers rated the adequacy a 3. Another 37% gave a 4 or 5, meaning the technology is very adequate for teachers to accomplish their classroom goals. In other words, three-fourths of teachers rated their technology average or better, which indicates that schools have made great strides over the past five years to equip classrooms with instructional technology.

While technology directors should be recognized for this progress, it is important to note that a quarter of teachers (26%) rated the technology as a 1 or 2, meaning below average. These teachers still do not have adequate access. Therefore, continued investment is needed. Perhaps, the more access that is available, the more teachers are using technology. The more success they have, the more they use additional activities. It is a never ending cycle of demand, meaning it may be impossible to achieve full access for all classrooms.

Figure 57: Adequacy of Instructional Technology

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Roadblocks to Using Purchased Digital Products

If the overall instructional technology is at least adequate for three-quarters of the teachers, then why is it not used more frequently? MDR’s teacher survey asked about the most common roadblocks with using the digital products purchased by the school or district. Thirty-five percent of teachers said they do not have the required material and/or technology to support it. More than two-thirds (69%) rate that response among the top three roadblocks.

One in five (20%) of teachers say they need more training, with 64% rating that in the top three roadblocks. Teachers with over 20 years of experience are most likely (67%) to say they need more training, compared with teachers with lower levels of experience (57%). Teacher training is an issue in the implementation of every program—new textbook, new computer, new phone system, new gradebook. There is never enough training. Commercial providers should embed training in their products so formal training is unnecessary. Very often, vendors include videos, how-to guides, and classroom management tips for successfully using their digital product in the classroom.

Eighteen percent of teachers say the purchased materials do not match students’ needs, with 65% rating this in the top three most common roadblocks. Fourteen percent ranked not aligning with the teaching approach as the most common roadblock, with 57% ranking that in the top three roadblocks. These two issues are real concerns that imply that digital products, while taking advantage of the hardware in the classroom, do not address students’ needs or work with teachers’ pedagogical approach. Digital curriculum providers should spend more time in the classroom talking to teachers and observing students interacting with the products they publish to make sure they are, in fact, meeting a need and that they work with a desired pedagogy.

Ten percent of teachers identify not knowing how to get started as a common roadblock, with 43% ranking this problem in the top three. This objection should be the easiest for vendors to address through ease of use, strong product support, and an implementation guide.
Figure 58: Roadblocks to Using Purchased Digital Products: Ranked #1

- I don’t have the required materials and/or technology to support it: 35%
- I need more training: 20%
- Doesn’t match the needs of my students: 18%
- Doesn’t align with my teaching approach: 14%
- I don’t know how to get started: 10%

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Figure 59: Roadblocks to Using Purchased Digital Products: Ranked in Top Three

- I don’t have the required materials and/or technology to support it: 69%
- Doesn’t match the needs of my students: 65%
- I need more training: 64%
- Doesn’t align with my teaching approach: 57%
- I don’t know how to get started: 43%

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School size seems to be a factor in responses to the top three roadblocks question. Seventy-five percent of small schools do not have the required materials, compared with 64% of medium-sized schools. Small schools are often under-resourced in a number of areas due to their inability to get volume discounts. Sixty-eight percent of teachers at small schools and 66% of teachers from medium-size schools need more training, compared with only 56% of those at very large schools.
Other comments that teachers expressed in response to identifying the most common roadblocks to digital product use can be categorized into time, technical issues, permissions, and compatibility. The following sampling captures the main themes teacher wrote in on the survey:

- **Time**
  - “With digital, I always feel like I have to have a back-up plan, so it is more work.”
  - “Time to implement.”
  - “Time to become proficient.”
  - “Time available to complete the activity.”
  - “Finding time to use it to supplement the mandated curriculum.”
  - “So many clicks, so little time!”
  - “After training, I need TIME to play around with new technology in order to remember it and see how it fits into MY teaching; otherwise the training is completely wasted on me!”
• Technical issues
  – “School computer system cannot handle the load of everyone using digital products at the same time.”
  – “Server goes down frequently.”

• Permissions
  – “Need administrative rights to load or download products.”
  – “Cannot install my own software, need IT.”
  – “No administrator rights to buy or download materials without prior approval from technology department and they install it.”

• Compatibility
  – “Doesn’t work on iPad minis consistently.”
  – “Unsupported legacy programs.”

Challenges of Using Apps in the Classroom

Apps that need to be downloaded onto devices can be challenging for teachers to manage. Downloading on every device, juggling which devices the app is compatible with, payment, and passwords can add up to extra effort. The MDR survey asked teachers an open-ended question on the challenges of using apps. Responses can be categorized into lack of access, connectivity issues, time, finding appropriate apps, managing and monitoring students to ensure they are on task, training, downloading permissions, cost, and unreliable technology.

Consistent with other survey findings, a third of the respondents wrote that their biggest challenge with app use is lack of access to technology. Lack of access can mean different things to different teachers. For many, lack of access means no devices available for classroom use.

We do not have 1 to 1 or wireless Internet.

For far more, there are some devices available, but there are not enough for each student.

If students don’t have 1:1 computers, then most of the lesson is watching one student perform or use the app. This creates boredom for students sitting and watching instead of engaging students.

Or there are enough devices for each student to use but they are on a cart that must be shared with many other classrooms. Thus, access is limited to once or twice per week.

My school has a cart of computers and a cart of iPads that teachers can check out. This can make the consistency of the app usage in the classroom difficult since those resources are divided between the school. I’ve found that apps are more effective if they can be used consistently throughout the year.

Enough computers for students. I can check out 5 iPads on Monday....all other days are questionable because other grade levels have first grabs at iPads. I only have 3 student computers in my room.
Still for others, devices are available, but they are outdated to the point that relevant apps do not work with the devices.

We don’t have devices for the all students to use. The system we do have is very outdated. Most of the computers don’t work.

Additionally, when teachers get the use of the cart, the devices may not be ready for use:

The times I have reserved the iPad cart or laptop cart they have been left unplugged and must be charged before I can use them. When I have obtained a fully charged cart there is a problem with battery life and connectivity. I spend a lot of time reconnecting, restarting, and find that student passwords do not work.

And the Bring Your Own Device philosophy does not always provide adequate access either.

The greatest challenge I face using apps in the classroom is students having access to a device that is adequate for them to use the app. Our Internet and apps are adequate, but devices are not always up to par. If students bring a device, it may be a small smartphone with a cracked screen. This makes it difficult for students to move efficiently from site to site or app to app and find the information they need.

Equity to access continues to be a challenge. Some school budgets are constrained, and many students lack access at home.

Many students do not have access to devices or Internet at home. The community is poor and rural so Internet and cable are not even available to many students.

Related to access, just more than one in ten of the respondents wrote about the connectivity difficulties. Either the Internet or bandwidth is slow, they do not have reliable Wi-Fi, or there is too much traffic on their network to use the Internet reliably.

Classrooms are put on the lowest possible bandwidth ANY time there’s standardized testing (i.e. FAIR, EOC, FSA, etc.). Trying to run most apps or even the BYOD, is an uphill battle. For example, although I’ve purchased several tablets for my students’ use, we’re frequently not able to get enough signal to even use Kahoot, much less an app or site that requires more bandwidth.

Biggest challenge is the available bandwidth and Internet speed - we have the highest available but in our rural remote community the amount of data available to the area at any one time can change and the use of Internet in the school and among the whole community has a very real effect on our building internet speeds.

Student computers are not adequate when trying to run online programs. They are frequently slow and do not run well, especially in the mornings when access is at its peak. Teacher computers typically perform okay during the same times. The wireless computers are virtually useless when trying to access our online materials until 11 a.m.
Over a tenth of respondents noted time concerns are an issue for app use. Finding time for anything new is tough for teachers. In relation to apps specifically, teachers find there is not enough time to experiment, learn a new app, and determine how to integrate it into the curriculum. Some say that it is time-consuming to search for new apps that are appropriate and support the specific skills being taught in the classroom. Others say app use cuts into teaching time and distracts from the core curriculum.

For another 9% of respondents, the time of searching for apps is not the issue. Rather, these teachers cannot find appropriate apps that supplement their curriculum, address students’ needs, AND work on the devices in their classroom. Realistically, quality apps compete with good online resources for the share of technology use:

*Finding apps that are worth the trouble of hooking a device to the Smartboard when there are already so many excellent online resources out there is tough. It is rare that I find an app that is better than other online resources that I use. There are a few, however.*

Others cite the difficulty of managing students to ensure they are on task when using apps. This can include getting all students logged on quickly and efficiently, making sure students are learning and not playing, and are not distracted with the technology.

*Too many apps have game options that students use instead of the learning options. They cheat through the learning process to play the games instead. Also some apps allow students to message each other so they chat instead of learn.*

*Keeping students engaged with the app. They may have trouble signing on and lose interest, it may take too long to sign on, they don’t remember log on information, too many log on/passwords to remember.*

*My greatest challenge is not being able to see what is on each screen as they use their iPads. So many of my students end up misusing their technology (chatting on google drive instead of researching for their paper, taking pictures of other people in the class, etc.).*

Additional concerns include:

**Budget**
The greatest challenge I have in my classroom using apps is having to use the free version. This makes each use limited and I am not able to use the app to its fullest potential.

**Training**
The greatest challenges of using apps in my classroom are my lack of knowledge of the app and the registering students into the program.

I need training on this and support that is consistently provided. Don’t start to implement and not follow through with the support that teachers need. This is essential to the success of the program.

**District approval to download**
Student access. If we find an app we want to use the system has to load it at the central office so students can access it on their iPads. It takes at least a month to get it loaded—this is SUCH A MAJOR roadblock.
My district will only allow teachers to download apps from the approved list; it takes a while to suggest apps and get them approved.

**Filters that block apps**
Lots of apps are blocked and we cannot use them on the wireless network.

Our district has blocked out too many educational sites. They have too many educational filters on our devices and the filters on the iPads are stronger than the laptops, which are stronger than the desktops. We have very little access to websites and no access to videos.

**Process of installing apps**
Having to download them to all devices, one at a time and not being able to show students how to use apps through a projector like I can on a laptop.

The time required before using the app—IT is not timely and I’ve found there is no point in asking for apps to be installed because it never gets done. I just avoid this altogether.

**Digital literacy**
The learning curve students bring with them for using a device and an app.

Students who come from homes with no access to any electronics who are in the same classrooms with students who were practically born with technology in their hands. No one is designated to help with those who need basics and then your time is spent with those and the other students don’t get the type of instruction you’d love to be able to provide.

Overall, technology availability and adequacy have really improved in schools. However, there are still classrooms that are unable to fully implement technology due to technological constraints—too little Wi-Fi, bandwidth, and devices—or process constraints—too little training, time, and district processes—to facilitate ease of use. Vendors must recognize the reality of the technology setup their customers have because it will greatly impact the usage and renewal of their products.
CHAPTER 9
Key Takeaways

Teachers as Curriculum Writers

Over the past seven years, with the introduction of the Common Core or other new state standards systems, educators have been challenged to find high quality instructional materials that fully address the intent of the standards. As a result, districts turned to internal resources to write curriculum. Their staff knows their student body and local requirements the best. Some thought this was a short term trend because teachers would quickly tire of writing curriculum. Publishers would rewrite their materials, adequately addressing the standards, and this trend would die. However, seven years in, this trend is still going strong. The positive for the school is that teachers writing curriculum serves as excellent professional development, requiring the teachers to understand the concepts, the sequence, and the prerequisites of the curriculum at a much deeper level. Another positive is that perhaps teachers’ deeper involvement with the curriculum has cemented their involvement with purchasing materials—reflected in the survey finding that three-fifths of teachers play some role in the purchasing process for textbooks and supplemental materials. On the other hand, the time commitment for teachers to write curriculum is enormous, especially when teachers are already pressed for time. Most teachers do not learn how to write curriculum when receiving their teaching credentials. So, it is unclear how they are getting the appropriate background knowledge to develop these resources.

From a publisher perspective, teachers writing curriculum is very real competition. Schools and teachers are purchasing fewer materials since they are using district- or self-created materials instead. The more teachers use their own materials, the less familiar and reliant they are on publishers for the next curriculum need. This has long-term implications for the publishing business. Publishers must have a frank conversation with schools to understand what their materials are lacking and why educators are choosing to create rather than buy.

FREE Can Be High Quality

There is an overabundance of free instructional materials available on the Internet. These materials may be OER, from publishers that have freemium models, or from non-profits that have no intention of ever charging for their materials. There used to be a perception that free meant bad, hard to use, not that valuable. However, the abundance of free materials available now (sharemylesson), the number of non-profits creating quality materials (Khan Academy), and the investor funds pouring into edtech startups...
(LearnZillion) have created an environment where teachers can find really good free materials. This has changed the educator mindset to, “Why would I pay when there is so much good stuff out there?” This is a dangerous mindset from a publisher’s perspective. For an established publisher that has successfully made the transition from print to digital, the competition from free may be a more formidable threat than the move to digital. Publishers need to really focus on their competitive advantages and make sure they are providing unique value, developing strong partnerships with schools, and providing a differentiated level of service that the free content providers cannot offer.

Adequacy of Technology Is Good, But...

Overall, technology availability and adequacy has really improved in schools. Eighty-two percent of teachers have access to a reliable wireless network, and 66% have a classroom printer. Three-quarters of teachers say that they have adequate technology in their classrooms. With the adoption of the Common Core, many districts were forced to reallocate funds to invest in wireless networks and devices due to the online administration of the PARCC and SBAC assessments. Districts should be recognized for their progress on improving the infrastructure to support technology use in schools. That said, there are still one-quarter of classroom that are lacking in technology adequacy. Until all schools have adequate infrastructure and devices in all of their classrooms, access will be an issue. Additionally, just having access is not enough. The technology needs to be updated for operating systems, memory, etc. to support the latest systems and apps. As more teachers have success with technology, the more they are going to want to use it. This increased usage places a burden on the infrastructure, potentially slowing it down and making it inadequate to support new demand. It is a never-ending cycle. The reality is that schools may never achieve that end goal of 100% adequacy because the target keeps moving. Vendors of hardware and infrastructure will find a ready market as the challenge of keeping up with demand will continue.

Teachers’ Time Is Scarce

Teachers work hard and have always been busy. But with their expanded roles finding and writing instructional materials, the demands of the different activities on their plate has grown to a challenging level. Teachers spend an average of five hours per week creating materials and seven hours per week searching for materials. In total, that is over two hours per work day. The educational community has to recognize that this is time teachers are not differentiating instruction, grading papers, communicating with students and parents, or exercising and tending to personal matters necessary for achieving some sort of work/life balance. Administrators should be wary of how much time teachers are spending on these tasks and evaluate if this is the right allocation of their time. Vendors need to be conscious of the demands on teachers’ time to ensure their programs are relieving teachers of additional work.
Ease of Use, Engagement, and Personalization

The abundance of high-quality, free resources is a challenge for vendors. How can developers differentiate themselves to create products that educators will pay for? Ease of use—speed of getting started, friendly interface, ease of login, and succinct supporting materials—is definitely essential as teachers have limited time to learn new programs. Also, making products exceptionally easy to use may not be the type of work that providers of free materials may be able to invest in.

Teachers value the engagement factor. Teachers are competing with Snapchat, Instagram, and other social media for students’ attention, plus kids are playing entertaining and addictive technology such as Pokémon Go in their personal time. Not all instructional materials need avatars, contests, and games that offer quick self-gratification; however, flat materials without sound, color, and multimedia will not offer enough interactivity for true engagement. Vendors need to find the right balance between engagement offering intrinsic motivation without compromising the educational integrity of the materials.

Lastly, teachers value personalization. It is not easy to achieve but it is a promise that only technology can truly deliver with any kind of scale efficiency.

Ease of use, engagement, and personalization are three qualities in resources that educators are willing to pay for. Commercial providers need to address these and other factors that will be of value to teachers and map them to their unique products and services in order to maintain and grow their businesses.
References


4 The Evolution of Professional Development to Professional Learning, MDR. [Link](http://schooldata.com/mdr-reports/)


7 IT Leadership Survey, CoSN. [Link](http://www.cosn.org/itsurvey)


9 “What is Project Based Learning (PBL)?” [Link](http://bie.org/about/what_pbl)

10 Project Lead The Way. [Link](https://www.pltw.org/)

11 State of the K-12 Market 2015, Part II. [Link](http://schooldata.com/mdr-reports/)

12 Maker Faire. [Link](http://makerfaire.com/makerfairehistory/)

13 State of the K-12 Market 2015: Part III, Figure 3.44 [Link](http://schooldata.com/mdr-reports/)

14 Ibid. Figure 3.57

15 Ibid. Figure 3.67

16 Multiple Student Devices: Challenges Facing Providers, MDR. [Link](http://schooldata.com/mdr-reports/)
Appendix: Survey Materials

Teacher/Classroom Survey 2016

Q1. Are teachers in your school given a classroom budget to spend on instructional materials and school supplies in a typical year?
   - Yes
   - No

Q2. On average, what is the classroom budget typically given to each teacher each year? Please provide your best estimate. Note: This question was only asked if answer to Q1 was Yes.
   - $1-$100
   - $101-$250
   - $251-$500
   - $501-$750
   - $751-$1,000
   - Over $1,000 (please specify amount)
   - Don’t know

Q3. Do you spend any personal funds (not reimbursed) on classroom materials in a typical school year?
   - Yes
   - No

Q4. How much of your personal funds (not reimbursed) do you typically spend on classroom materials each year? Please provide your best estimate. Note: this question was only asked if answer to Q3 was Yes.
   - $1-$50
   - $51-$100
   - $101-$200
   - $201-$300
   - $301-$400
   - $401-$500
   - $501-$600
   - $601-$700
   - $701-$800
   - $801-$900
   - $901-$1,000
   - More than $1,000
Q5. How much of your personal funds do you typically spend on professional development in a school year?
- $1-$50
- $51-$100
- $101-$200
- $201-$300
- $301-$400
- $401-$500
- $501-$600
- $601-$700
- $701-$800
- $801-$900
- $901-$1,000
- More than $1,000
- I don’t spend any personal funds on professional development

Q6. What types of classroom materials are you most likely to buy with your classroom budget? Please rate each of the following on a scale of 1 – 5 with 1 being not at all likely and 5 being very likely.

<table>
<thead>
<tr>
<th>Purchase with Classroom Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Not at all likely</td>
</tr>
<tr>
<td>Apps for the classroom</td>
</tr>
<tr>
<td>Supplemental materials (digital/online)</td>
</tr>
<tr>
<td>Classroom library/reference materials</td>
</tr>
<tr>
<td>Supplemental materials (print/physical format)</td>
</tr>
<tr>
<td>Classroom supplies (paper, pencils, etc)</td>
</tr>
<tr>
<td>Art supplies</td>
</tr>
<tr>
<td>Bulletin board items</td>
</tr>
<tr>
<td>Student incentives/rewards</td>
</tr>
<tr>
<td>Field trips/parties/entertainment</td>
</tr>
<tr>
<td>Other (please specify and rate)</td>
</tr>
</tbody>
</table>
Q7. What types of classroom materials are you most likely to buy with your personal funds? Please rate each of the following on a scale of 1 – 5 with 1 being not at all likely and 5 being very likely.

<table>
<thead>
<tr>
<th>Purchase with Personal Funds</th>
<th>1-Not at all likely</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5-Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apps for the classroom</td>
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<tr>
<td>Supplemental materials</td>
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<tr>
<td>(digital/online)</td>
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<tr>
<td>Classroom library/reference</td>
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<tr>
<td>materials</td>
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<tr>
<td>Supplemental materials (print/physical format)</td>
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<tr>
<td>Classroom supplies</td>
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<tr>
<td>(paper, pencils, etc)</td>
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<td></td>
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<tr>
<td>Art supplies</td>
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<tr>
<td>Bulletin board items</td>
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<tr>
<td>Student incentives/rewards</td>
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<tr>
<td>Field trips/parties/entertainment</td>
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<tr>
<td>Other (please specify and rate)</td>
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</tbody>
</table>

Q8. Regardless of whether you are using your classroom budget or personal funds, indicate the top 5 sources you used this school year to gather information about instructional materials (i.e., workbooks, apps, software) and school supplies (i.e., pencils, art supplies). In each column, please rank the top 5 sources used in order of preference with 1 being your top choice.

<table>
<thead>
<tr>
<th>Gather Information</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Amazon</td>
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<tr>
<td>Websites/Internet</td>
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<tr>
<td>searches (other than Amazon)</td>
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<tr>
<td>Catalogs (print)</td>
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<tr>
<td>Websites that provide reviews of education products</td>
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<tr>
<td>Social media sites</td>
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<tr>
<td>(Facebook, Twitter, etc.)</td>
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<tr>
<td>Email promotional messages</td>
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<tr>
<td>Retail store promotions</td>
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<tr>
<td>(Staples, Target, Walmart, etc.)</td>
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<tr>
<td>Teacher stores</td>
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<tr>
<td>Conventions/Professional conferences</td>
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<tr>
<td>Professional publications (digital or print)</td>
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<tr>
<td>Direct mail promotions</td>
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<tr>
<td>Sales representatives</td>
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<tr>
<td>Other (please specify)</td>
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</tbody>
</table>
Q9. Regardless of whether you are using your classroom budget or personal funds, indicate the top 5 sources you used this school year to purchase instructional materials (i.e., workbooks, apps, software) and school supplies (i.e., pencils, art supplies). In each column, please rank the top 5 sources used in order of preference with 1 being your top choice.

<table>
<thead>
<tr>
<th>Purchase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon</td>
</tr>
<tr>
<td>Websites/Internet searches (other than Amazon)</td>
</tr>
<tr>
<td>Catalogs (print)</td>
</tr>
<tr>
<td>Websites that provide reviews of education products</td>
</tr>
<tr>
<td>Social media sites (Facebook, Twitter, etc.)</td>
</tr>
<tr>
<td>Email promotional messages</td>
</tr>
<tr>
<td>Retail store promotions (Staples, Target, Walmart, etc.)</td>
</tr>
<tr>
<td>Teacher stores</td>
</tr>
<tr>
<td>Conventions/Professional conferences</td>
</tr>
<tr>
<td>Professional publications (digital or print)</td>
</tr>
<tr>
<td>Direct mail promotions</td>
</tr>
<tr>
<td>Sales representatives</td>
</tr>
<tr>
<td>Other (please specify)</td>
</tr>
</tbody>
</table>

Q10. Whether you buy them with your classroom budget or personal funds, how important are the following factors in your purchasing decision of instructional materials? Please rate each of the following on a scale of 1 – 5 with 1 being not at all important and 5 being very important.

<table>
<thead>
<tr>
<th>Factor</th>
<th>1-Not at all important</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5 – Very important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of use</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Research based has positive reviews/evaluations/other districts/other districts/schools supported by testimonials and case studies from other districts/schools included an assessment component</td>
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<tr>
<td>Is supported by testimonials and case studies from other districts/schools included an assessment component</td>
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<tr>
<td>Is in digital format</td>
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<tr>
<td>Has had positive reviews/evaluations/other districts/other districts/schools included an assessment component</td>
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<tr>
<td>Is on approved state/district/school list</td>
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<tr>
<td>Includes an assessment component</td>
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<tr>
<td>Other (please specify and rate)</td>
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</tbody>
</table>
Q11. When your school/district is selecting and purchasing the following items, what is your role in the process?

<table>
<thead>
<tr>
<th>Item</th>
<th>Not at all involved</th>
<th>Influencer who reviews products</th>
<th>Participate on purchasing committee</th>
<th>Final decision maker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional Hardware</td>
<td></td>
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<tr>
<td>Apps in the classroom</td>
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<tr>
<td>Textbooks (print &amp; digital)</td>
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<tr>
<td>Supplemental Materials (print &amp; digital)</td>
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<tr>
<td>School Supplies</td>
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<tr>
<td>Formative Assessments</td>
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<tr>
<td>Professional Development materials/programs</td>
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</tbody>
</table>

Q12. How frequently do you use the following instructional resources?

<table>
<thead>
<tr>
<th>Resource</th>
<th>Never</th>
<th>Monthly</th>
<th>Several times per month</th>
<th>Weekly</th>
<th>Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Education Resources (OER)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital instructional materials (videos, games, apps etc.) – regardless of source</td>
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<tr>
<td>Materials developed by you or staff at your school</td>
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<tr>
<td>Materials developed by your district or state</td>
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<tr>
<td>Commercial materials provided by your school/district/state</td>
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<tr>
<td>Materials found free on the Internet (other than OER)</td>
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<tr>
<td>Other (please specify and rate)</td>
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</tbody>
</table>
Q13. How many hours per week do you generally spend on the following tasks? Please provide your best estimate.

<table>
<thead>
<tr>
<th>Task</th>
<th>3 hours or less</th>
<th>4-6 hours</th>
<th>7-9 hours</th>
<th>10 or more hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating instructional resources (activities, quizzes, etc.)</td>
<td></td>
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</tr>
<tr>
<td>Searching for free instructional resources to use in my classroom</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Searching for paid-for instructional resources to use in my classroom</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Participating in online professional learning opportunities</td>
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</tr>
</tbody>
</table>

Q14. How frequently do you visit each of the following sites for professional, not personal, reasons?

<table>
<thead>
<tr>
<th>Site</th>
<th>Never</th>
<th>Monthly</th>
<th>Several times per month</th>
<th>Weekly</th>
<th>Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Twitter</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pinterest</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>LinkedIn</td>
<td></td>
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<tr>
<td>WeAreTeachers</td>
<td></td>
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<tr>
<td>edWeb.net</td>
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<tr>
<td>Instagram</td>
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<tr>
<td>YouTube</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Other Social Media sites (please specify and rate)</td>
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</tr>
</tbody>
</table>

Q15. What value do you place on each of the following features of digital instructional materials and assessments?

<table>
<thead>
<tr>
<th>Feature</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to implement personalized learning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased/improved student collaboration</td>
<td></td>
<td></td>
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<tr>
<td>Increased student engagement</td>
<td></td>
<td></td>
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<tr>
<td>Speed of receiving student performance results</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Quality of reports to inform instruction</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Other (please specify)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Q16. What are the most common roadblocks you encounter to using the digital products your district/school has purchased? Please rank from 1-5 with 1 being the most common and 5 being the least common.

<table>
<thead>
<tr>
<th>Roadblock</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don’t have the required materials and/or technology to support it</td>
<td></td>
</tr>
<tr>
<td>I don’t know how to get started</td>
<td></td>
</tr>
<tr>
<td>I need more training</td>
<td></td>
</tr>
<tr>
<td>Doesn’t match the needs of my students</td>
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<tr>
<td>Doesn’t align with my teaching approach</td>
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<tr>
<td>Other (please specify and rank)</td>
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</tbody>
</table>

Q17. To what degree have you implemented any of the following methods in your classroom? Please rate each on a 1-5 scale with 1 being not at all implemented and 5 being fully implemented?

<table>
<thead>
<tr>
<th>Method</th>
<th>Not at all implemented</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Fully implemented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flipped Classroom</td>
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<td>Maker Movement</td>
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<tr>
<td>Blended Learning</td>
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<tr>
<td>STEM Methods</td>
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<td>BYOD</td>
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<tr>
<td>Project-based Learning</td>
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</tbody>
</table>

Q18. Which of the following technologies are currently available in your classroom? Check all that apply.
1. Reliable wireless network access
2. 1:1 (i.e. every student has their own device)
3. I don’t have 1:1 but I have a personal work station and 3-6 devices for students to share
4. Consistent access to a cart with a classroom set of devices
5. An interactive whiteboard (IWB)
6. A printer
7. A document camera
8. An interactive projector
9. Other (please specify)

Q19. How adequate is the overall instructional technology (i.e. student devices, presentation systems and tools, network speed and bandwidth) available in your school? Please rate on a 1 to 5 scale with 1 being Inadequate and 5 being State of the Art.

Q20. Finally, what are the greatest challenges of using apps in your classroom?
EdNET Insight is the education industry’s trusted source for information about the current state of the K-12 market and the game-changing trends that impact educators and administrators as well as the companies and organizations that serve them. EdNET Insight combines the proven power of research and analysis with recognized industry experts to deliver an insightful, comprehensive view of the trends and influences that are shaping the education market today—and tomorrow.

State of the K-12 Market 2016 provides an insightful overview of the K-12 education market based on a survey to one of the following key stakeholders: Technology Directors, Instructional Directors, Principals, and Teachers. These reports are essential reading for a thorough and up-to-date understanding of the K-12 education market. Each report in the series, authored by industry analysts, includes results from secondary research and interviews and offers key takeaways and recommendations.