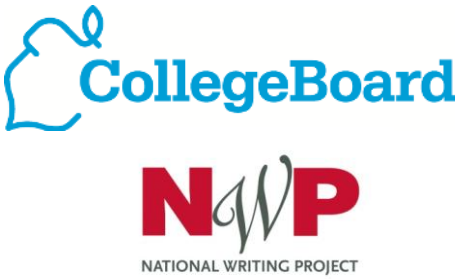


NOVEMBER 1, 2012

How Teens Do Research in the Digital World

A survey of Advanced Placement and National Writing Project teachers finds that teens' research habits are changing in the digital age

Kristen Purcell
Director of Research, Pew Internet Project

Lee Rainie
Director, Pew Internet Project

Alan Heaps
Vice-President, The College Board

Judy Buchanan
Deputy Director, National Writing Project

Linda Friedrich
Director of Research and Evaluation, National Writing Project

Amanda Jacklin
Director, Program Strategy Management, AP and College Readiness, The College Board

Clara Chen
Coordinator, Program Strategy Management, AP and College Readiness, The College Board

Kathryn Zickuhr
Research Specialist, Pew Internet Project

Pew Research Center's Internet & American Life Project
1615 L St., NW – Suite 700
Washington, D.C. 20036
Phone: 202-419-4500

http://pewinternet.org/Reports/2012/Student-Research

Summary of Findings

Three-quarters of AP and NWP teachers say that the internet and digital search tools have had a "mostly positive" impact on their students' research habits, but 87% say these technologies are creating an "easily distracted generation with short attention spans" and 64% say today's digital technologies "do more to distract students than to help them academically."

These complex and at times contradictory judgments emerge from 1) an online survey of more than 2,000 middle and high school teachers drawn from the Advanced Placement (AP) and National Writing Project (NWP) communities; and 2) a series of online and offline focus groups with middle and high school teachers and some of their students. The study was designed to explore teachers' views of the ways today's digital environment is shaping the research and writing habits of middle and high school students. Building on the Pew Internet Project's prior work about how people use the internet and, especially, the information-saturated digital lives of teens, this research looks at teachers' experiences and observations about how the rise of digital material affects the research skills of today's students.

Overall, teachers who participated in this study characterize the impact of today's digital environment on their students' research habits and skills as mostly positive, yet multi-faceted and not without drawbacks. Among the more positive impacts they see: the best students access a greater depth and breadth of information on topics that interest them; students can take advantage of the availability of educational material in engaging multimedia formats; and many become more self-reliant researchers.

At the same time, these teachers juxtapose these benefits against some emerging concerns. Specifically, some teachers worry about students' overdependence on search engines; the difficulty many students have judging the quality of online information; the general level of literacy of today's students; increasing distractions pulling at students and poor time management skills; students' potentially diminished critical thinking capacity; and the ease with which today's students can borrow from the work of others.

These teachers report that students rely mainly on search engines to conduct research, in lieu of other resources such as online databases, the news sites of respected news organizations, printed books, or reference librarians.

Overall, the vast majority of these teachers say a top priority in today's classrooms should be teaching students how to "judge the quality of online information." As a result, a significant portion of the teachers surveyed here report spending class time discussing with students how search engines work, how to assess the reliability of the information they find online, and how to improve their search skills. They also spend time constructing assignments that point students toward the best online resources and encourage the use of sources other than search engines.

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

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

The internet and digital technologies are significantly impacting how students conduct research: 77% of these teachers say the overall impact is "mostly positive," but they sound many cautionary notes

Asked to assess the overall impact of the internet and digital technologies on students' research habits, 77% of these teachers say it has been "mostly positive." Yet, when asked if they agree or disagree with specific assertions about how the internet is impacting students' research, their views are decidedly mixed.

On the more encouraging side, virtually all (99%) AP and NWP teachers in this study agree with the notion that the internet enables students to access a wider range of resources than would otherwise be available, and 65% also agree that the internet makes today's students more self-sufficient researchers.

At the same time, 76% of teachers surveyed "strongly agree" with the assertion that internet search engines have conditioned students to expect to be able to find information quickly and easily. Large majorities also agree with the assertion that the amount of information available online today is overwhelming to most students (83%) and that today's digital technologies discourage students from using a wide range of sources when conducting research (71%). Fewer teachers, but still a majority of this sample (60%), agree with the assertion that today's technologies make it harder for students to find credible sources of information.

The internet has changed the very meaning of "research"

Perhaps the greatest impact this group of teachers sees today's digital environment having on student research habits is the degree to which it has changed the very nature of "research" and what it means to "do research." Teachers and students alike report that for today's students, "research" means "Googling." As a result, some teachers report that for their students "doing research" has shifted from a relatively slow process of intellectual curiosity and discovery to a fast-paced, short-term exercise aimed

at locating just enough information to complete an assignment.

These perceptions are evident in teachers' survey responses: 94% of the teachers surveyed say their students are "very likely" to use Google or other online search engines in a typical research assignment, placing it well ahead of all other sources that we asked about. Second and third on the list of frequently used sources are online encyclopedias such as Wikipedia, and social media sites such as YouTube. In descending order, the sources teachers in our survey say students are "very likely" to use in a typical research assignment:

- Google or other online search engine (94%)
- Wikipedia or other online encyclopedia (75%)
- YouTube or other social media sites (52%)
- Their peers (42%)
- Spark Notes, Cliff Notes, or other study guides (41%)
- News sites of major news organizations (25%)
- Print or electronic textbooks (18%)
- Online databases such as EBSCO, JSTOR, or Grolier (17%)
- A research librarian at their school or public library (16%)
- Printed books other than textbooks (12%)
- Student-oriented search engines such as Sweet Search (10%)

In response to this trend, many teachers say they shape research assignments to address what they feel can be their students' overdependence on search engines and online encyclopedias. Nine in ten (90%) direct their students to specific online resources they feel are most appropriate for a particular assignment, and 83% develop research questions or assignments that require students to use a wider variety of sources, both online and offline.

Most teachers encourage online research, including the use of digital technologies such as cell phones to find information quickly, yet point to barriers in the school environment impeding quality online research

Asked which online activities they have students engage in, 95% of the teachers in this survey report having students "do research or search for information online," making it the most common online task. Conducting research online is followed by accessing or downloading assignments (79%) or submitting assignments (75%) via online platforms.

These teachers report using a wide variety of digital tools in their classrooms and assignments, well beyond the typical desktop and laptop computers. Specifically, majorities say they and/or their students use cell phones (72%), digital cameras (66%), and digital video recorders (55%) either in the classroom or to complete school assignments. Cell phones are becoming particularly popular learning tools, and are now as common to these teachers' classrooms as computer carts. According to respondents, the most popular school task students use cell phones for is "to look up information in class," cited by 42% of the

teachers participating in the survey.

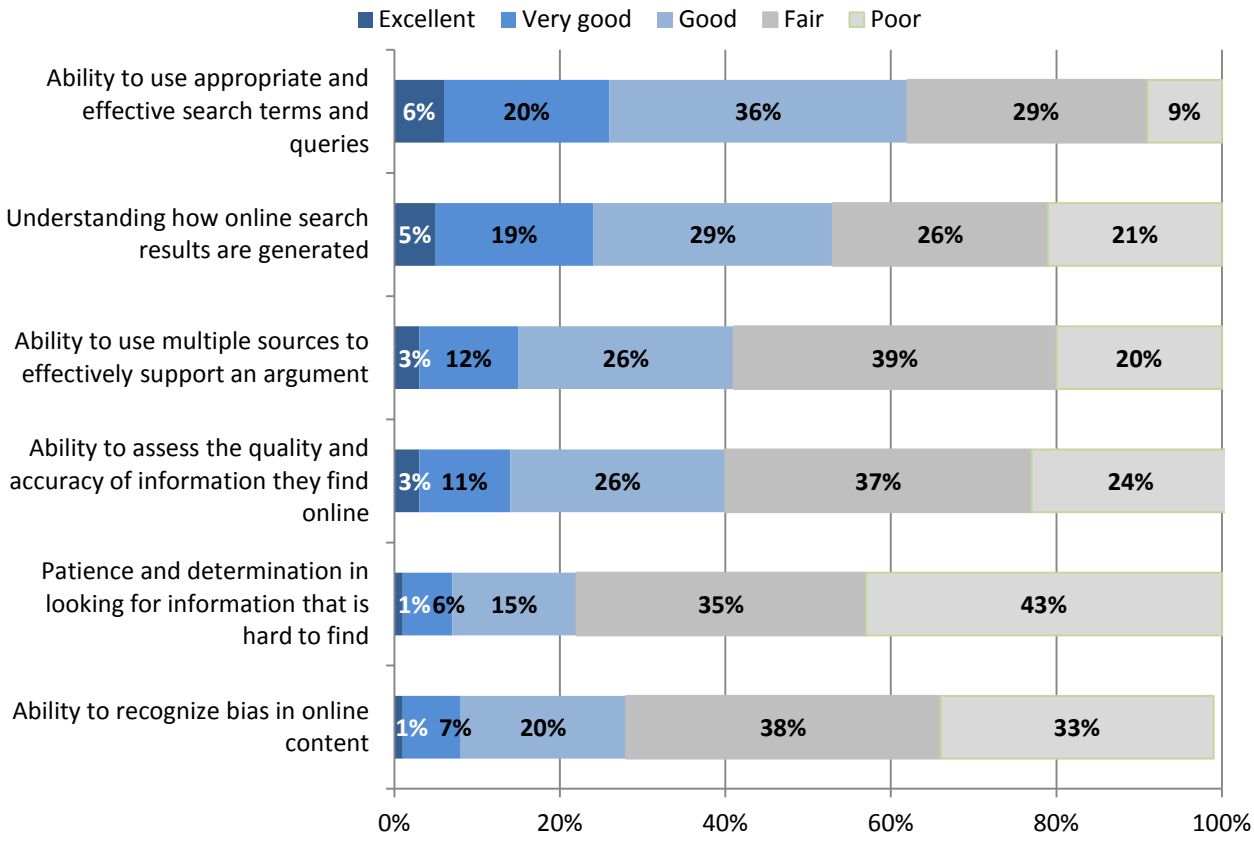
Yet, survey results also indicate teachers face a variety of *challenges* in incorporating digital tools into their classrooms, some of which, they suggest, may hinder how students are taught to conduct research online. Virtually all teachers surveyed work in a school that employs internet filters (97%), formal policies about cell phone use (97%) and acceptable use policies or AUPs (97%). The degree to which teachers feel these policies impact their teaching varies, with internet filters cited most often as having a "major impact" on survey participants' teaching (32%). One in five teachers (21%) say cell phone policies have a "major" impact on their teaching, and 16% say the same about their school's AUP. These impacts are felt most strongly among those teaching the lowest income students.

Teachers give students' research skills modest ratings

Despite viewing the overall impact of today's digital environment on students' research habits as "mostly positive," teachers rate the actual research skills of their students as "good" or "fair" in most cases. Very few teachers rate their students "excellent" on any of the research skills included in the survey. This is notable, given that the majority of the sample teaches Advanced Placement courses to the most academically advanced students.

Most teachers give students modest ratings of "good" or "fair" when it comes to specific research skills

Overall, how would you rate your students on each of the following?



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

Students receive the highest marks from these teachers for their ability to use appropriate and effective search queries and their understanding of how online search results are generated. Yet even for these skills, only about one-quarter of teachers surveyed here rate their students "excellent" or "very good." Indeed, in our focus groups, many teachers suggest that despite being raised in the "digital age," today's students are surprisingly lacking in their online search skills. Students receive the lowest marks for "patience and determination in looking for information that is hard to find," with 43% of teachers rating their students "poor" in this regard, and another 35% rating their students "fair."

Given these perceived deficits in key skills, it is not surprising that 80% of teachers surveyed say they spend class time discussing with students how to assess the reliability of online information, and 71% spend class time discussing how to conduct research online in general. Another 57% spend class time helping students improve their search skills and 35% devote class time to helping students understand how search engines work and how search results are generated. In addition, asked what curriculum

changes might be necessary in middle and high schools today, 47% "strongly agree" and 44% "somewhat agree" that courses or content focusing on digital literacy *must* be incorporated into every school's curriculum.

A richer information environment, but at the price of distracted students?

Teachers are evenly divided on the question of whether today's students are fundamentally different from previous generations; 47% agree and 52% disagree with the statement that "today's students are really no different than previous generations, they just have different tools through which to express themselves." Responses to this item were consistent across the full sample of teachers regardless of the teachers' age or experience level, the subject or grade level taught, or the type of community in which they teach.

At the same time, asked whether they agree or disagree that "today's students have fundamentally different cognitive skills because of the digital technologies they have grown up with," 88% of the sample agree, including 40% who "strongly agree." Teachers of the lowest income students are the most likely to "strongly agree" with this statement (46%) but the differences across student socioeconomic status are slight, and there are no other notable differences across subgroups of teachers in the sample.

Overwhelming majorities of these teachers also agree with the assertions that "today's digital technologies are creating an easily distracted generation with short attention spans" (87%) and "today's students are too 'plugged in' and need more time away from their digital technologies" (86%). Two-thirds (64%) agree with the notion that "today's digital technologies do more to distract students than to help them academically." In focus groups, some teachers commented on the connection they see between students' "overexposure" to technology, and the resulting lack of focus and diminished ability to retain knowledge they see among some students. Time management is also becoming a serious issue among students, according to some teachers; in their experience, today's digital technologies not only encourage students to assume all tasks can be finished quickly and at the last minute, but students also use various digital tools at their disposal to "waste time" and procrastinate.

Thus, despite 77% of the survey respondents describing the overall impact of the internet and digital technologies on students' research habits as "mostly positive," the broad story is more complex. While majorities of teachers surveyed see the internet and other digital technologies encouraging broader and deeper learning by connecting students to more resources about topics that interest them, enabling them to access multimedia content, and broadening their worldviews, these teachers are at the same time concerned about digital distractions and students' abilities to focus on tasks and manage their time. While some frame these issues as stemming directly from digital technologies and the particular students they teach, others suggest the concerns actually reflect a slow response from parents and educators to shape their own expectations and students' learning environments in a way that better reflects the world today's students live in.

About the data collection

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

Focus group discussions were instrumental in developing a 30-minute online survey, which was administered in phase two of the research to a national sample of middle and high school teachers. The survey results reported here are based on a non-probability sample of 2,462 middle and high school teachers currently teaching in the U.S., Puerto Rico, and the U.S. Virgin Islands. Of these 2,462 teachers, 2,067 completed the entire survey; all percentages reported are based on those answering each question. The sample is not a probability sample of all teachers because it was not practical to assemble a sampling frame of this population. Instead, two large lists of teachers were assembled: one included 42,879 AP teachers who had agreed to allow the College Board to contact them (about one-third of all AP teachers), while the other was a list of 5,869 teachers who participated in the National Writing Project's Summer Institute during 2007-2011 and who were not already part of the AP sample. A stratified random sample of 16,721 AP teachers was drawn from the AP teacher list, based on subject taught, state, and grade level, while all members of the NWP list were included in the final sample.

The online survey was conducted from March 7–April 23, 2012. More details on how the survey and focus groups were conducted are included in the Methodology section at the end of this report, along with focus group discussion guides and the survey instrument.

About the teachers who participated in the survey

There are several important ways the teachers who participated in the survey are unique, which should be considered when interpreting the results reported here. First, 95% of the teachers who participated in the survey teach in public schools, thus the findings reported here reflect that environment almost exclusively. In addition, almost one-third of the sample (NWP Summer Institute teachers) has received extensive training in how to effectively teach writing in today's digital environment. The National Writing Project's mission is to provide professional development, resources and support to teachers to improve the teaching of writing in today's schools. The NWP teachers included here are what the organization terms "teacher-consultants" who have attended the Summer Institute and provide local leadership to other teachers. Research has shown significant gains in the writing performance of

students who are taught by these teachers.[1]

Moreover, the majority of teachers participating in the survey (56%) *currently* teach AP, honors, and/or accelerated courses, thus the population of middle and high school students they work with skews heavily toward the highest achievers. These teachers and their students may have resources and support available to them—particularly in terms of specialized training and access to digital tools—that are not available in all educational settings. Thus, the population of teachers participating in this research might best be considered "leading edge teachers" who are actively involved with the College Board and/or the National Writing Project and are therefore beneficiaries of resources and training not common to all teachers. It is likely that teachers in this study are developing some of the more innovative pedagogical approaches to teaching research and writing in today's digital environment, and are incorporating classroom technology in ways that are not typical of the entire population of middle and high school teachers in the U.S. Survey findings represent the attitudes and behaviors of this particular group of teachers only, and are not representative of the entire population of U.S. middle and high school teachers.

Every effort was made to administer the survey to as broad a group of educators as possible from the sample files being used. As a group, the 2,462 teachers participating in the survey comprise a wide range of subject areas, experience levels, geographic regions, school type and socioeconomic level, and community type (detailed sample characteristics are available in the Methodology section of this report). The sample includes teachers from all 50 states, Puerto Rico, and the U.S. Virgin Islands. All teachers who participated in the survey teach in physical schools and classrooms, as opposed to teaching online or virtual courses.

English/language arts teachers make up a significant portion of the sample (36%), reflecting the intentional design of the study, but history, social science, math, science, foreign language, art, and music teachers are also represented. About one in ten teachers participating in the survey are middle school teachers, while 91% currently teach grades 9-12. There is wide distribution across school size and students' socioeconomic status, though half of the teachers participating in the survey report teaching in a small city or suburb. There is also a wide distribution in the age and experience levels of participating teachers. The survey sample is 71% female.

[1] More specific information on this population of teachers, the training they receive, and the outcomes of their students are available at the National Writing Project website at www.nwp.org.

About the Pew Research Center's Internet & American Life Project

The Pew Research Center's Internet & American Life Project is one of seven projects that make up the Pew Research Center, a nonpartisan, nonprofit "fact tank" that provides information on the issues, attitudes and trends shaping America and the world. The Project produces reports exploring the impact of the internet on families, communities, work and home, daily life, education, health care, and civic and political life. The Pew Internet Project takes no positions on policy issues related to the internet or other communications technologies. It does not endorse technologies, industry sectors, companies, nonprofit organizations, or individuals. While we thank our research partners for their helpful guidance, the Pew Internet Project had full control over the design, implementation, analysis and writing of this survey and report.

About the College Board

The College Board is a mission-driven not-for-profit organization that connects students to college success and opportunity. Founded in 1900, the College Board was created to expand access to higher education. Today, the membership association is made up of over 6,000 of the world's leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, the College Board helps more than seven million students prepare for a successful transition to college through programs and services in college readiness and college success — including the SAT® and the Advanced Placement Program®. The organization also serves the education community through research and advocacy on behalf of students, educators and schools. For further information, visit www.collegeboard.org.

About the National Writing Project

The National Writing Project (NWP) is a nationwide network of educators working together to improve the teaching of writing in the nation's schools and in other settings. NWP provides high-quality professional development programs to teachers in a variety of disciplines and at all levels, from early childhood through university. Through its nearly 200 university-based sites serving all 50 states, the District of Columbia, Puerto Rico and the U.S. Virgin Islands, NWP develops the leadership, programs and research needed for teachers to help students become successful writers and learners. For more information, visit www.nwp.org.

I. Introduction

This research was developed to understand more fully the unique opportunities and challenges facing today's middle and high school teachers in training students how to write and "do research" in a rapidly evolving digital environment. In particular, the study was designed to explore teachers' assessments of students' research and writing habits, the broad impacts of digital technologies on their students, and the extent to which teachers incorporate digital technologies into classroom pedagogy, particularly for teaching research and writing skills. This study builds on prior Pew Internet research on the growing use of search engines and mobile tools to gather information, the rise of social networks and texting, and the increasingly immersive digital world in which today's teens live.

The Study

The study was designed to collect middle and high school teachers' views of many aspects of the current role of technology in the classroom and in teens' research and writing practices. The findings will be summarized in a series of three reports, issued in succession. Broadly, the three reports will be guided by the following questions:

Report One: How Do Teens 'Do Research' in Today's Digital World?

- How students define and conduct research in today's tech environment
- If and how new technologies are changing how research is taught
- Whether and how the topics of digital literacy and information literacy are currently being taught in schools
- What are the key skills students need to learn to conduct effective research given today's digital environment

Report Two: The State of Teen Writing in Today's Digital World (forthcoming)

- The specific impacts of digital technologies on student writing skills and habits
- If and how new technologies encourage student collaboration, creativity, and personal expression
- If and how new technologies are changing how writing is taught in middle and high school classrooms

Report Three: Teaching and Technology (forthcoming)

- How teachers experience and manage digital access issues among their students
- The different ways digital technologies are being incorporated into classroom pedagogy
- School policy and resource issues affecting teachers' abilities to incorporate new technologies into their classrooms
- Potential changes in assessments, curriculum, and the school environment teachers feel are necessary in response to today's evolving digital environment
- Whether and how new technologies enable and enhance teacher professional development and collaboration

- Teachers' personal use of and attitudes toward different digital technologies

Pew Internet's prior research on teens

This report follows prior research conducted by Pew Internet in partnership with the College Board and the National Commission on Writing for America's Families, Schools and Colleges. In 2008, Pew Internet collaborated with the two organizations to study the writing habits and practices of teens. At that time, focus groups with teens and a national survey of teens and their parents demonstrated that while teens were heavily embedded in a tech-rich world and were crafting a significant amount of electronic text, they saw a fundamental distinction between their electronic social communications and the more formal writing they did for school or for their own purposes.[2]

This study also builds on Pew Internet's extensive research on how children ages 12-17 use the internet and other digital technologies more generally. Since 2001, Pew Internet has released a series of reports on teens' digital lives, including online content creation, the use of social networking sites, the rise of texting as a central communication form, teens' online privacy management, video gaming, distracted driving, and most recently, digital citizenship.[3] Over the past decade, Pew Internet's teen research has shown just how deeply the internet and digital technologies are woven into teens' lives.

This study is Pew Internet's first extensive examination of *teachers'* perceptions of both the positive and negative impacts of this rapidly evolving technological environment on middle and high school students, particularly on their writing and research habits.

Pew Internet's prior research on how adults find information online

The current study also builds on Pew Internet's research on how U.S. adults locate and assess information online. Over time, Pew Internet's surveys of adults have consistently shown that search engine use tops the list of the most popular online activities, along with email. Currently, 91% of online adults use search engines to find information on the web, up from 84% in June 2004. On any given day, 59% of those using the Internet use search engines. As early as 2002, more than eight in ten online adults were using search engines, and as noted in an August 2011 Pew Internet report[4], search is only rivaled by email both in the overall percent of internet users who engage in the activity and the percent of internet users doing it on a given day.

[2] "Writing, Technology and Teens," available at http://www.pewinternet.org/Reports/2008/Writing-Technology-and-Teens.aspx.

[3] All of Pew Internet's past research on teens, including reports, toplines and datasets, can be found at http://pewinternet.org/topics/Teens.aspx.

[4] See "Search and Email Still Top the List of Most Popular Online Activities," available at http://www.pewinternet.org/Reports/2011/Search-and-email.aspx

Most recently, a February 2012 survey of 2,212 U.S. adults ages 18 and older finds that not only are adults increasingly reliant on search engines as an information resource, but they also generally trust the results they get and feel the quality and relevance of the information provided by search engines is improving over time.[5] Specifically, 66% of adult search engine users say search engines are a fair and unbiased source of information and 55% say that the quality of search results is getting better over time. Another 86% report that they learned something new or important using a search engine that really helped them or increased their knowledge.

Information goes mobile

Finally, this work builds on Pew Internet's extensive trend data on the growing use of mobile devices, particularly cell phones, as both communication- and information-gathering devices. The most recent data indicate that among adult cell phone users, the reliance on these mobile devices for "just-in-time" information is steadily growing. A March 2012 survey of U.S. adults finds that 70% of all adult cell phone owners had used the device in the past month to get a needed piece of information —including 35% who had used their phone to solve an unexpected problem and 27% who used their phone to settle an argument they were having. Overall, these "just-in-time" adult cell users comprise 62% of the entire U.S. adult population.[6]

Given these findings, the current study explores the role search engines and mobile devices might play in how teens today conduct research and evaluate information, as well as teachers' own use of search as an information gathering tool. Without question, search engines and mobile devices have changed the way information is accessed, shared, and perceived. How these trends are impacting the research habits of teens today is a central focus of this work.

[5] "Search Engine Use 2012," available at http://www.pewinternet.org/Press-Releases/2012/Search-Engine-Use-2012.aspx.

[6] See "Just-in-Time Information Through Mobile Connections," available at http://www.pewinternet.org/Reports/2012/Just-in-time.aspx.

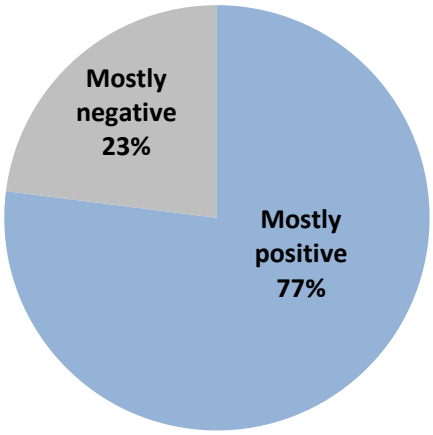
II. The Mixed Impact of Digital Technologies on Student Research

One of the core topics addressed in the study is the degree to which the internet and other digital technologies are shaping the way today's middle and high school students "do research" and define what "research" is. Overall, survey and focus group findings suggest that teachers view the broad impact of the internet and digital technologies on the research process positively**.** Yet, they give their students modest ratings when it comes to specific research skills and note deficits that need to be addressed. According to the teachers in this study, the impact of the internet and digital tools on student research habits and skills is multifaceted and complex; opening up a vast world of multi-media resources, yet also requiring students to dig through this cornucopia to find credible and salient information. This duality was best captured by a focus group participant who said, "The internet makes doing research easier….easier to do well and easier to do poorly."

Teachers characterize the overall impact of digital technologies on student research skills as "mostly positive" but observe mixed effects

Asked to assess the overall impact of the internet and other digital technologies on students' research habits, just over three-quarters of survey participants (77%) say the impact has been "mostly positive." Just 23% say it has been "mostly negative."

Overall, would you say the impact of the internet on students' research habits has been mostly positive or mostly negative?



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

Teachers' perceptions of the impact of the internet are fairly consistent across the full sample, yet some small differences emerge across subgroups. For example, older teachers and those teaching in rural areas are slightly more likely than others to see the overall impact as mostly positive (see table below). Likewise, middle school teachers (those teaching grades 6-8) are slightly more likely than high school teachers to describe the impact as mostly positive, as are math teachers relative to those teaching other subjects.

Conversely, teachers in large urban centers and metropolitan areas and those who describe their students as coming from mostly lower income households or living below the poverty line are slightly more likely than those teaching in most other community types to say the impact of the internet on student research skills has been mostly negative.

Perceptions of the internet's impact on student research are consistent across most groups of teachers

% of each group who say impact is…	Mostly Positive	Mostly Negative
Sample…		
AP Sample*	75	25
NWP Summer Institute Sample**	78	22
Teacher age…		
22-34	72	28
35-54	76	23
55+	78	21
Years teaching…		
15 or fewer	73	27
16 or more	**80**	20
Courses taught…		
AP/Honors/Accelerated	76	24
Other	76	24
Grade level taught…		
6-8	**81**	19
9-10	76	24
11-12	74	26
Subject matter…		
English/Language Arts	76	24
History/Social Studies	74	26
Math	**85**	15
Science	74	26
Foreign Language	78	23
Art/Music	75	25
Other	77	23
Community type…		
Metro area/Large city	73	**27**
Small city/Suburb	77	23
Small town	74	26
Rural area	**82**	19
Student socioeconomic status mostly…		
Low income/Below poverty line	72	**28**
Lower middle income	76	24
Middle income	78	22
Upper middle/Upper income	79	21

***** Advanced Placement teachers

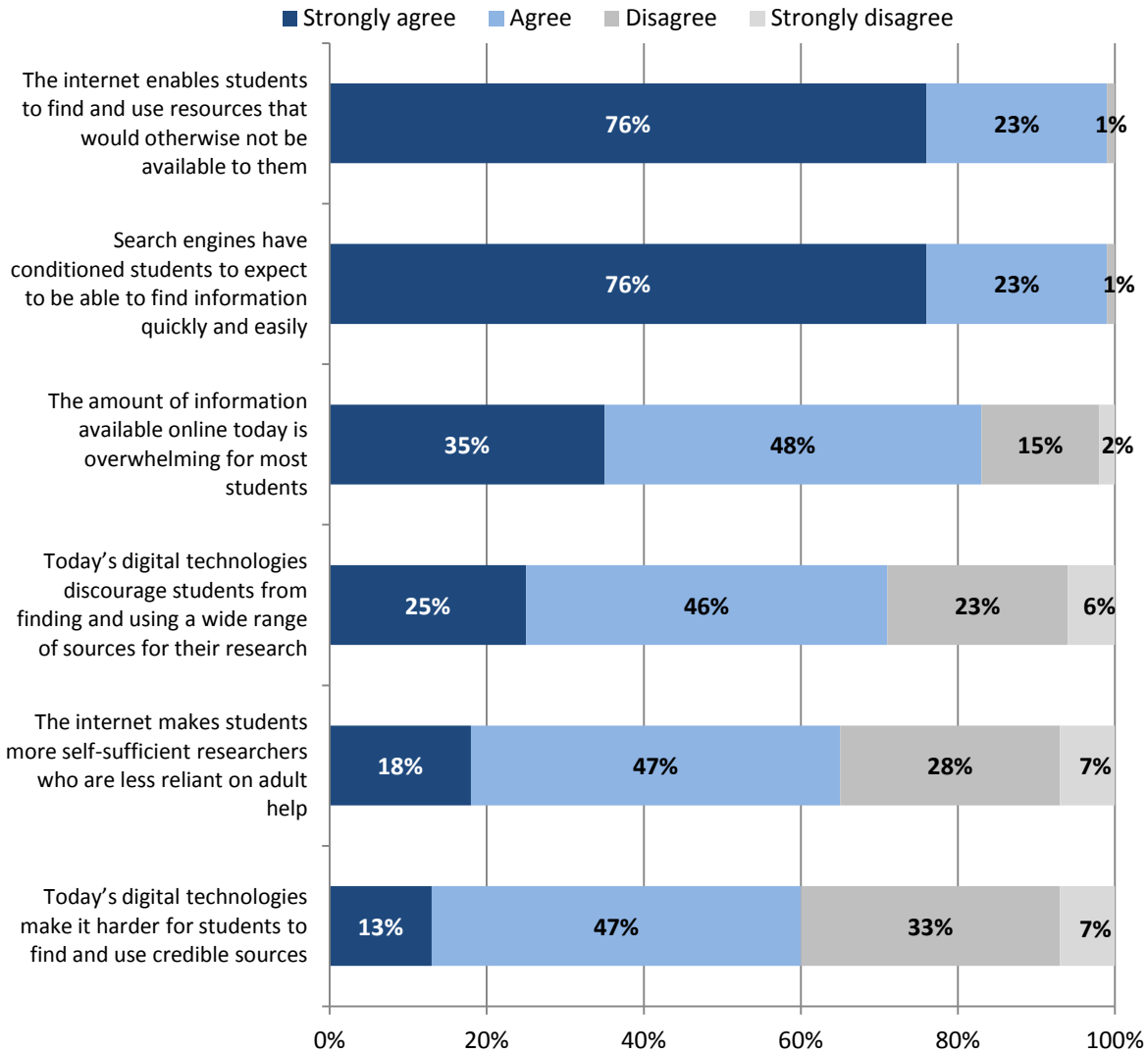
****** National Writing Project teachers

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

While on the whole the teachers surveyed see "mostly positive" impacts when it comes to how the internet is shaping the way their students conduct research, the teachers' responses to a series of assertions about specific potential impacts the internet may have on student research reveals mixed views about technology's effects. On one hand, virtually all teachers surveyed (99%) agree to some extent with the notion that the internet "enables students to find and use resources that would otherwise not be available to them." This includes fully three-quarters (76%) who "strongly agree" this is the case. A majority (65%) also agree with the idea that the internet "makes students more self-sufficient researchers who are less reliant on adult help," though only a small portion "strongly agree" with this statement (18%).

Teachers see the internet having both positive and negative impacts on students' research habits and skills

Do you agree or disagree with each of the following statements?



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

While majorities of these teachers see the internet broadening available sources to students and encouraging their self-reliance, 76% of teachers also "strongly agree" with the notion that "search engines have conditioned students to expect to be able to find information quickly and easily." Another 23% "somewhat agree" with this statement, indicating it rings true to at least some degree with virtually all of the teachers surveyed (99%).

Large majorities of teachers also agree to some extent that "the amount of information available online today is overwhelming for most students" (83%) and that "today's digital technologies discourage students from finding and using a wide range of sources for their research" (71%). Fewer teachers but still a slight majority (60%) agree with the idea that "today's digital technologies make it harder for students to find and use credible sources of information."

Looking at how subgroups of our sample responded to these items, some interesting differences emerge. Teachers in rural areas are particularly likely when compared with teachers in other types of communities to "strongly agree" that the internet allows students to find more resources than would otherwise be available (82% "strongly agree"). Teachers whose students live in households with incomes below the poverty line are particularly likely to agree that the internet allows students to be more self-sufficient researchers (25% "strongly agree"). The table below shows which subgroups of these AP and writing teachers are particularly likely (or particularly *un*likely) to "strongly agree" with each item.

On some impacts asked about, some groups of teachers feel more strongly than others

Teacher subgroups that are particularly likely (and unlikely) to "strongly agree" that…	% Strongly Agree
The amount of information available online today is overwhelming for most students (35% of total sample strongly agree)	
Foreign language teachers	43%
National Writing Project teachers	41%
6-8 grade teachers	40%
Math teachers	27%
Search engines have conditioned students to expect to be able to find information quickly and easily (76% of total sample strongly agree)	
Arts and Music teachers	82%
Teachers teaching in small towns	82%
Math teachers	70%
The internet enables students to find and use resources that would otherwise not be available to them (76% of total sample strongly agree)	
Rural teachers	82%
6-8 grade teachers	81%
National Writing Project teachers	81%
Science teachers	71%
Foreign language teachers	69%
The internet makes students more self-sufficient researchers who are less reliant on adult help (18% of total sample strongly agree)	
Foreign language teachers	27%
Teachers whose students live mostly below the poverty line	25%
Teachers age 55 and older	22%
Today's digital technologies discourage students from finding and using a wide range of sources for their research (25% of total sample strongly agree)	
History/Social Studies teachers	32%
Foreign language teachers	31%
Teachers whose students live mostly below the poverty line	30%
Teachers teaching in small towns	30%
Arts and Music teachers	28%
Today's digital technologies make it harder for students to find and use credible sources (13% of total sample strongly agree)	
Teachers whose students live mostly below the poverty line	21%
Foreign language teachers	17%
Teachers who have taught 16 years or more	9%
Math teachers	8%

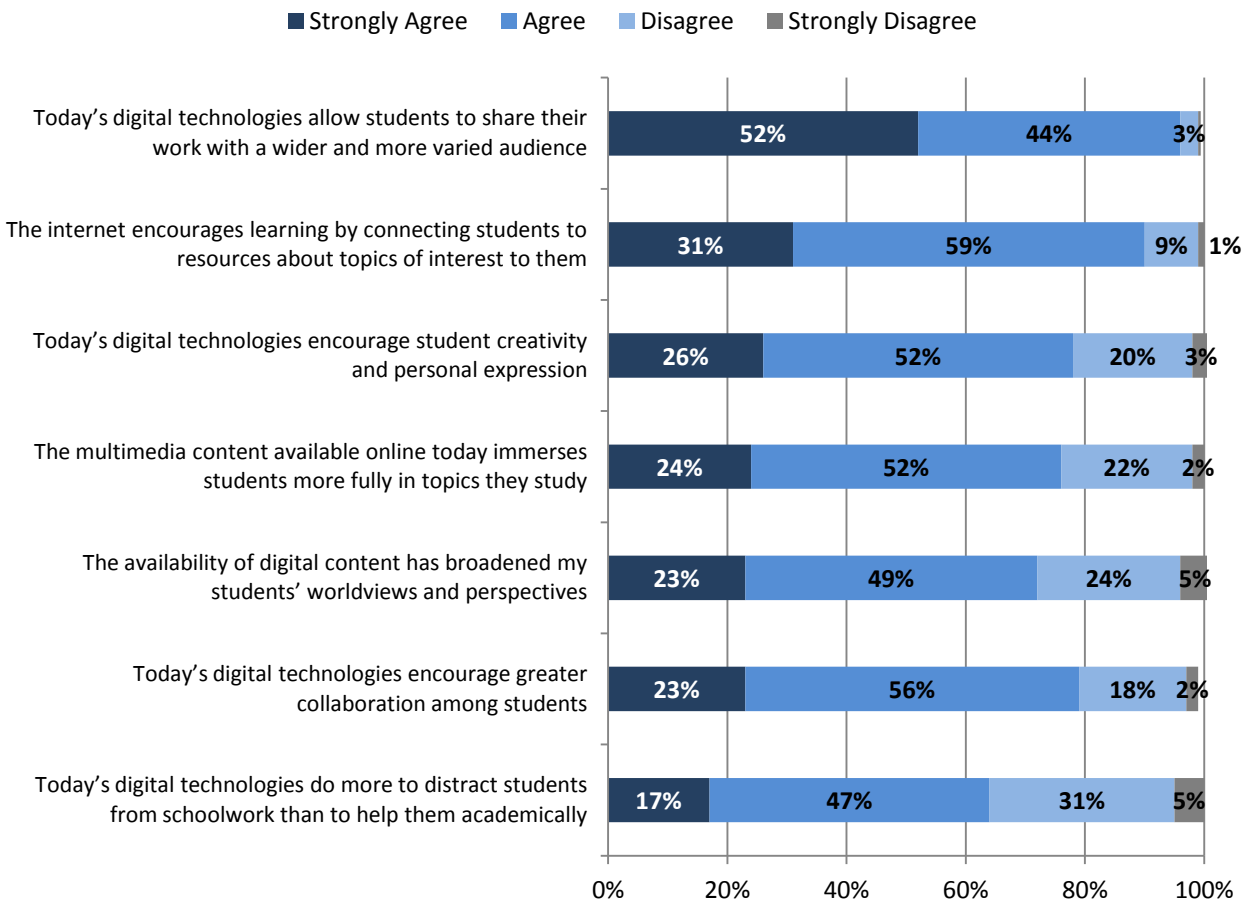
Source: The Pew Research Center's Internet & American Life Project Online Survey of Teachers, March 7 to April 23, 2012, n=2,462 middle and high school teachers.

Most teachers see digital technologies fostering deeper learning and expanded worldviews

In a separate survey question, AP and NWP teachers noted additional positive influences they see the internet and other digital tools having on student learning. A majority of teachers "somewhat agree" or "strongly agree" that the internet and digital technologies encourage learning by connecting students to more resources about topics that interest them (31% "strongly agree," 59% "somewhat agree"), enabling them to access multimedia content (24% "strongly agree," 52% "somewhat agree"), and broadening their worldviews (23% "strongly agree" and 49% "somewhat agree").

Teachers' Views of the Impacts of Today's Digital Ecology on Student Learning

Do you agree or disagree with each of the following statements?



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

Teachers' perceptions of these impacts vary, particularly across grade level, the socioeconomic status of students, and the subject matter they teach. Middle school teachers (teaching 6th-8th grade) and those whose students live in the lowest income households are particularly likely to "strongly agree" that the internet connects students to topics that interest them, that multimedia online content immerses their students more deeply in those topics, and that overall, the internet helps expand their students' worldview. Math and science teachers, in contrast, are the least likely to see these impacts.

Teachers of the lowest income students and those teaching 6th-8th grade are especially likely to feel the internet connects and immerses students in topics and expands their worldviews

Teacher subgroups that are particularly likely (and unlikely) to "strongly agree" that…	% Strongly Agree
The internet encourages learning by connecting students to resources about topics of interest to them (31% of total sample strongly agree)	
6-8 grade teachers	45%
Teachers whose students live mostly below the poverty line	43%
National Writing Project teachers	41%
Arts and music teachers	36%
Science teachers	25%
Math teachers	22%
The multimedia content available online today immerses students more fully in topics they study (24% of total sample strongly agree)	
6-8 grade teachers	35%
National Writing Project teachers	32%
Teachers whose students live mostly below the poverty line	32%
Foreign language teachers	30%
Teachers whose students live mostly in upper and upper middle income households	29%
Math teachers	19%
Science teachers	19%
The availability of digital content has broadened my students' worldviews and perspectives (23% of total sample strongly agree)	
6-8 grade teachers	32%
Foreign language teachers	31%
Teachers whose students live mostly below the poverty line	27%
Science teachers	17%
Math teachers	16%

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

The perceived impact of the internet on student research, in a word

The survey posed two open-ended questions asking this group of AP and NWP teachers to reflect on what they see as the "most positive" and "most negative" aspects of students being able to conduct research online. Teachers' coded responses are represented in the graphics below, with the size of each

word reflecting how frequently it was mentioned by respondents. Each graphic is accompanied by some examples of teacher responses to these questions.

The former question asking for the "most positive" aspect of online research elicited many comments about the openness and accessibility of online information. The latter questions asking about the "most negative" aspect drew mainly responses concerning the ease of copying and pasting information and concerns about students' ability to judge the quality of online information.

"Overall, what would you say is the most POSITIVE aspect of students today being able to conduct research online?"

(Image below)

Students have quick access to some of the best available research online, especially if they have access to databases and are taught how to use them to do research. Also, when students do come across information they don't understand in the course of research, the internet allows them to conduct quick, tangential searches to learn needed information in support of their primary search.

The near infinite possibilities for information retrieval makes for animated research!

Students are WILLING to research online because things are easier to find with search engines. Researching with books, journals, etc, is more tedious and time-consuming. Students are not willing to put in that kind of time and effort.

It is instant gratification. Visuals usually accompany the research.

Ability to quickly find information from the comfort of ANY physical location

Students are able to access a great deal of information, from a variety of sources. Also, we don't have the problem of hard-copy resources becoming inaccurate.

Easy accessibility to a variety of sources and access to things like museums or archeological sites worldwide they would most likely not be able to travel to on their own.

Students have more access to a wider variety of content in multiple media formats. So they are exposed to a more well-rounded balance of perspectives that engages their critical thinking skills and allows them to formulate their own stances and arguments.

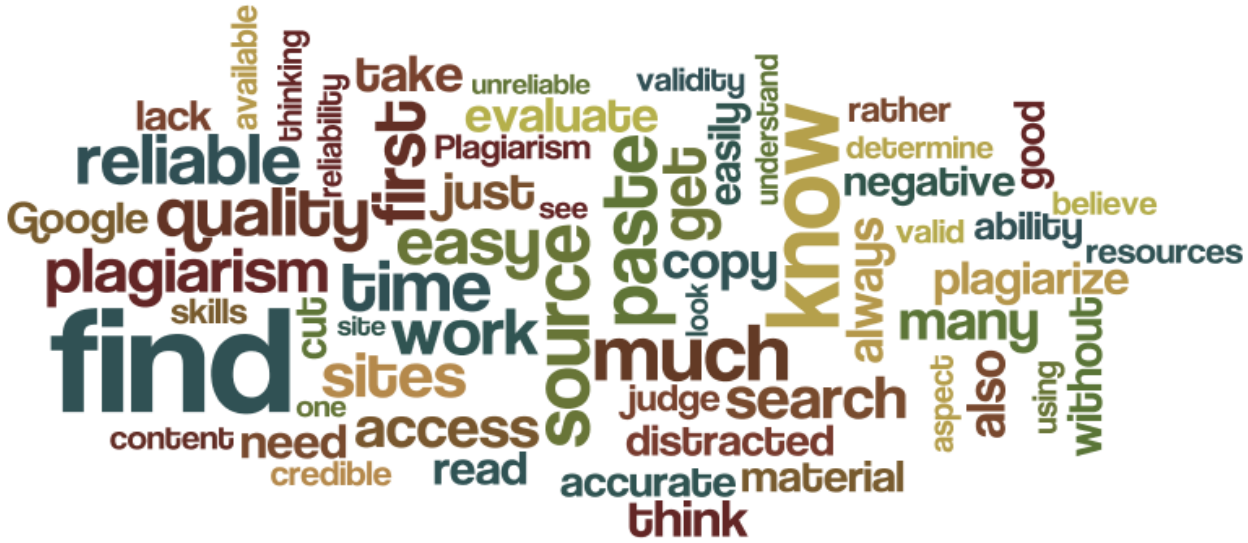
Students can use the world-wide-web as the best library ever built and as the largest public forum. They can read articles of every opinion and often discuss those opinions on the same page.

In a rural county such as I teach in, access to information from the internet is essential. Without it, my students would be way behind suburban school districts.

Information is immediately available to them and they don't have to go anywhere physically to obtain it. In my area of foreign languages, they are able to access foreign newspapers, magazines, blogs, etc. and it is in real time and authentic language. This is a huge improvement over the past when we had to wait for authentic materials to come in the mail - or bring them back from Europe.

If students have access to the internet and will take the time to do the research it lessens the gap, in other words all students have equal access to the information and it is portable.

"Overall, what would you say is the most NEGATIVE aspect of students today being able to conduct research online?"



Same as the positive! They have access to a seemingly endless amount of information, and they can get to it quickly. They don't know how to filter out bad information, and they are so used to getting information quickly, that when they can't find what they are looking for immediately, they quit.

It becomes the sole method for gaining information. Even direct observation skills whither because everything is viewed on-screen. Information becomes something to be received from someone else. Cheating is so similar to doing online research that it becomes easily justified. Why does a student need to engage in learning if it is easier, faster, and more fun to play with a phone?

Plagiarism has increased, and the ability to search for the answers online instead of learning how to complete the problems or assignment using their own abilities.

Students cut and paste without reading or evaluating the information.

Speed is their objective, not quality.

Students have difficulty sorting through all the information that they access. Because of the opportunities for leading the student to other subjects I think that students many times become diverted to other topics and have difficulty staying focused on the current work. Also students have trouble with documentation of the sources of their information.

Students have become more lazy about research, relying on the first selection of sources, rather than digging deeper into subject matter.

The speed at which they can find information. I have students that do not want to open a textbook set in front of them because it is "too much work" they would rather take out their phone and Google.

They click on the first Google link that comes up. They rarely look farther down, or at subsequent pages. They don't judge the quality of the info they find. They have lost the ability to do any non-internet based research.

They can find information quickly and independently but they do not have the evaluative skills to determine if the information is accurate, they do not have the patience or determination to check the information with an alternate source (second opinion) and when we spend time in class using the internet to do research, they assume once they've found a site, they can print and be "done" when in reality they should print and read, think, analyze, and reassess whether they will need more or different information. Students also have a very hard time reading on-line for extended periods of time. They get distracted so easily with the computer screen as opposed to salient, extended reading in books/texts.

Inability to use a library - digital or otherwise.

My school district does not come close to supplying students with the digital technologies, or, more importantly, the district does not support them in any way in learning about how to judge the reliability of sources, how to maintain a responsible online presence, how to work with different content online, etc. The students are basically on their own. As a result, I see students using unreliable sources and I also see a gap between students who have access to the internet at home and those who do not.

In focus groups, teachers expanded on their views of the positive aspects of students conducting research online

The focus groups presented teachers an opportunity to talk in more depth about the impacts they see the internet having on their students' research practices. Among the benefits of these technologies, focus group participants noted how the internet provides students with much greater volume, depth and breadth of information than was accessible to prior generations. Several teachers pointed out that not only is more information available, but it is also available in many different formats, which can be extremely beneficial for students with different learning styles and even cognitive abilities. Moreover, many see the combination of text and images on the internet "bringing to life" the subjects their students are interested in, in ways that prior generations did not experience.

Focus group participants also noted how they see the internet making the research process for students easier and more accessible because students are generally familiar with finding information online in their daily lives and do not find research assignments as mysterious, daunting, or difficult. The hope expressed by some teachers is that these tools make "doing research" more palatable and even enjoyable for today's students, fighting what some see as potential apathy in this area.

Our students are in that weird stage in their academic careers where they're getting used to more rigorous work, and…there's some apathy going on among the students. And if it weren't for the Internet and the ease of access to information, they wouldn't be going to the library looking in books…So the Internet is good, something that they're familiar with that's easy and accessible for them, and I don't think without that we'd get much in terms of them doing any kind of research at all. – Teacher at College Board school

I think this aspect of education is changing for the better. Having more access more of the time to information means that "research" does not have to be a weighty, ugly word to students. "Research" can (and should) occur all of the time in many classes and not just in an isolated context. Writing and researching synthesize nicely—researching is another way of saying a "more focused reading"...I'm trying to promote the use of various digital tools to pull in articles and information of interest. – National Writing Project teacher

Well, they're familiar with it and it's easy to go on the Internet and most of them have access, so that's a positive for us. Anything that we can say, it won't be too difficult for you to go out and do this; it gets done. If you were more of a process, like when I was in college, you had to go to the library and look at microfilm, they would never do that. So, I don't think so. – Teacher at College Board school

Technology has really helped teach research skills, it makes it easier to find information, Word 7 has made citing and building a bibliography a million times easier than it used to. Just as in my time in high school, very few students want to do a research project. But technology does make it easier to complete the projects and create a professional document/presentation. – AP Biology teacher

Many teachers also suggested that because the internet is "open 24 hours a day," it is much easier for students to fit research assignments into their busy schedules. Because it is possible to conduct research from virtually any location at any time, given the right device and internet accessibility, learning is now a 24-hour process that students can engage in whenever they wish to.

Teachers in the focus groups also raised potentially harmful aspects of online research

At the same time, teachers in the focus groups noted that access to these technologies have some drawbacks when it comes to how students conduct research. Responses were wide-ranging, but several themes emerged:

Students may accept the veracity of online information too easily. A pressing concern for these middle and high school teachers is some students' tendency to accept the first information they find through online searches without verifying that the information is accurate or reliable. A core concern in every focus group was that online information is often inaccurate and biased, and that middle and high school students do not have the skills necessary to identify the most credible information. A major challenge teachers cited in teaching effective research skills is getting their students to look beyond the first link in the search result list and to "dig" for high-quality, reliable, and accurate resources. Some teachers noted a perception among some students that "because it's on the Internet, it's right." Moreover, a common litmus test used by students to confirm the truthfulness of information is finding the same information in several different places online; both teachers and students acknowledged in focus groups that this is a commonly used strategy among students.

As said before, students struggle with critically evaluating information. They believe everything that is out there is true and they don't question anything. – National Writing Project teacher

Students are willing to accept the first answer, even if it seems implausible, simply because they want to be done looking. So there must be a willingness to accept that the first answer may not be the right one…As for student's receptivity [to dig deeper], well, as with all things, it varies from student to student. Some are willing to dig deeper and become better for it; others simply go along with it because it's what you're telling them. Still others actively oppose the effort because you're making them work. – AP US History teacher

It's interesting the methods they use, which I'm sure you all know, which is looking for sort of duplicate information at several sources, the net tells them it must be right because they're finding it in multiple places and so we're hearing from them, I think they have confidence there. – Teacher at College Board school

Today's students are not skilled enough at thinking critically about or synthesizing the information they find online. Many teachers expressed the idea that today's relatively "easy" online research process can result in fewer original thoughts, less critical thinking, and not as much actual synthesis of information on the part of their students. They point out that students can—and sometimes do—copy and paste information they find online directly into documents, without adequately thinking about it. This not only raises obvious concerns about their understanding of concepts such as plagiarism and fair use, but also worries some teachers that students are not developing adequate ability to think critically about the information they find and what it means vis a vis other information.

Many students do not know how to conduct accurate scientific based research. Many students go to Wikipedia or like sites when researching. They also do not understand the importance of learning about the topic in which they are researching. They find one site, minimize and write their paper as they read the information. The internet has made gathering information instantaneous and way too easy to plagiarize. I find that the technology has many positive aspects and if students learned, or wanted, to take the needed time to really conduct research it could be an amazing tool. – AP Biology teacher

Students generally think of 'research' as looking up a topic using the minimum number of resources required for the assignment and then paraphrasing (if they're not outright plagiarizing) what they say. While looking things up on the Internet has made research so much easier for students, it is also harder for them to 'sift and winnow' out the garbage, and assignments need to be carefully designed to encourage students to process the information for new understanding rather than for regurgitation. – AP Chemistry teacher

Past generations might have been more thorough for their context, but the amount of information that was available and culled through in the pursuit is nothing like it is today. Yet, present generation students still struggle to pursue research beyond the surface levels of superficiality. That probably has remained consistent. In some ways the greater availability of information has actually made for more complacency. Superficial research is so much easier than in the past, so at an introductory level today's students are quick but not necessarily thorough. – National Writing Project teacher

Students are becoming too reliant on the internet in lieu of other valuable sources of information. Focus group participants repeatedly voiced concern that the internet, rather than being one of many research tools students rely on, is becoming the *only* tool some students use. While many teachers said that online search engines are a good starting point for student research, they would also like to see their students utilize more effectively other resources such as library databases, books, and journals. Some expressed the concern that students may be losing the ability and/or inclination to use sources other than search engines, which may be better suited to the particular topic or question they are researching. Several focus group participants suggested that some students are so reliant on the

internet and search engines that when these tools are not available, or information cannot be found easily online, they are at a loss about where to look next. Further, in the experience of these teachers, some students work from the assumption that any information they need can be found online, quickly and easily. If information the student needs does not appear on the first page of search results, they see some students stop looking for appropriate material out of frustration, use less suitable information that

When it comes to thoroughly researching an idea or assignment, students don't dive deep into research and again, don't ask questions like, "Is this a valid source of information?" Students rely too much on the internet to find answers to questions and to find information. As a result, when there comes a time they can't find an answer, they don't know what to do. Students are losing problem solving skills. – National Writing Project teacher

I'm still trying to "train" my 9th graders to judge what sources of information are trustworthy and valid. One thing I'm still perplexed about is how they will forsake their textbook, which contains exactly what they need to know, for Google which may have some inkling of what they want to know. Why are textbook so "not" cool anymore? – National Writing Project teacher

I believe that almost all of my students equate research with using a search engine on the internet. This turns out often not to be effective research because their search parameters are not clearly defined, they are not sure what they are looking for, and have a hard time distinguishing between reliable and unreliable sources. – AP US History teacher

is more readily available, or assume that the information does not actually exist. Thus, while on the whole teachers acknowledged the benefits of a broad base of information being quickly available via the internet, many also said they would prefer to see tools like Google used as only one of many different types of sources.

Conducting research online can present too many distractions for students, preventing them from fully focusing on the task at hand. In focus group discussions, some teachers expressed concerns that when students conduct research online, they often are engaged in many other activities at the same time, such as using social networking sites, watching online videos, playing online games, etc. This online "multi-tasking" may interfere with a student's focus on an academic task, and may also be impacting time management skills.

Some teachers in the study report that students do not always set aside adequate time to complete assignments, specifically because they believe that digital tools will allow them to complete the task quickly online. However, when they do go online, students can be pulled into so many competing activities that the time they have allotted is not sufficient. Teachers say this is particularly true when a student leaves an assignment until the last minute, to find that online searches produce either too much information to sift through in the time available or too little information and inadequate time to research it more deeply. In focus groups, students confirmed this is sometimes the case. As one

student explained, she has had the experience of going online to do schoolwork and then "suddenly realizing" many hours have gone by and she has spent most of that time on a social networking site—without remembering what led her there.

When you talk about time management, you've got the distraction, time mismanagement, and then you've got the "How much time do I really need to do it?" And once they start to research it, because they are working on the Internet, sometimes it takes them longer to go through the different links and evaluate things. – Teacher at College Board school

So, they have hit like one, two sites, winnow through - wallow through - this material, winnow out what's good, and then start to put together their assignment. That is much more time consuming than they realize or understand, and that's for a normal student. We have our kids that have some learning disabilities and you're right, I didn't even think about that, but they really – sometimes it can be overwhelming. – Teacher at College Board school

The volume of information online can be overwhelming for some students, and students often do not have time to winnow through it. Many teachers say they have watched their students become overwhelmed by the sheer amount of information available online and either a lack of time or a lack of ability to sort through it effectively to find the best information for the assignment they are working on. Teens are not alone in this feeling; prior Pew Internet surveys indicate that 70% of adults agree with the assertion that "the amount of news and information available from different sources today is overwhelming."[7] The teachers we spoke with acknowledged that they too often feel this way, and are not surprised that students can become easily overwhelmed. Yet some are concerned that when students feel inundated with information, some respond by using the first information they come across without knowing if it is the best information available.

[7] "Understanding the Participatory News Consumer," available at http://pewinternet.org/Reports/2010/Online-News.aspx.

There's a lot of different skills that go behind figuring out what the best source is, but I would say definitely when there's a large amount of text, it's really overwhelming for anybody, and if you're looking at it on a smartphone screen, it's even more so, which a lot of our students do use for. – Teacher at College Board school

Our freshmen have a really hard time determining what is good information to meet the task, because they might get good information, it's reliable, it's credible, it's unbiased, but has nothing to do with solving the problem. – Teacher at College Board school

I think research has gotten paradoxically simpler and more complex for students and everyone. It is so easy to find basic information on nearly any subject. However, there is enormous difficulty finding signals amidst all the noise. This is where the greatest challenges exist for all. So students are generally lulled into a complacency and over-reliance on something like Google, although more and more students begin all searches with YouTube than I think many people notice. Regardless, the same kinds of skills and perseverance continue to apply as they always have. They are required to break through to deeper levels of information. Again, availability and access to quality resources has never been greater, but it requires even more skill in filtering and sorting. This is an area where students and others have always struggled. It is labor intensive and always requires a growing understanding of the topic and field, which evolves over time. Students are often in a rush. However, when they are on to something that they are really keen on the chances of them being able to go deep increases dramatically. – National Writing Project teacher

I believe students are overwhelmed with the amount of information that is thrown at them in today's world. As a result, I think most students throw their hands up in the air and take the information as is and at face value. They don't question or form opinions about information presented to them. If students don't develop this skill they are going to simply be puppets who believe everything that is set in front of them. I use this phrase with my 8th graders. "If it looks like dog food, and smells like dog food, is it always going to be dog food?" I am amazed at how many students walk away from this statement without questioning ANYTHING. – National Writing Project teacher

Cell phones as a classroom (and life) tool for "instant information"

Pew Internet has tracked the impact of cell phones on all Americans, adults and teens, since 2001. Over that time, as cell phones have become "smartphones," people have become more and more reliant on these devices as information gathering tools. Specifically, cell phones have provided users with the ability to get almost any information they need at almost any time in almost any location.

Among adult cell phone users, the reliance on these mobile devices for "just-in-time" information is steadily growing. A March 2012 survey of U.S. adults finds that 70% of all adult cell phone owners had used the device in the past month to get a needed piece of information—including 35% who had used their phone to solve an unexpected problem and 27% who used their phone to settle an argument they were having. Other uses included getting help in an emergency situation and getting real-time everyday information such as weather or sports scores. Overall, these "just-in-time" adult cell users comprised 62% of the entire U.S. adult population.[8] It is not surprising, therefore, to see adolescents and teens using their mobile devices as information-gathering tools, both inside and outside of the classroom.

To probe how these devices are being used by teens in their academic work, teachers were asked whether and how cell phones have become part of the learning experience. Roughly half of the teachers surveyed report that students are not permitted to use cell phones in their classrooms. The remaining half spoke to the impact these devices are having. The survey asked teachers whether their students use cell phones for any of five specific learning-related functions, shown in the table below. Reflecting the growing role of mobile tools in providing instant access to information, the most popular among the five activities asked about is students using a cell phone "to look up information in class," cited by 42% of the teachers who participated in the survey. This was followed closely by students using mobile phones to "take pictures or record video to use in class assignments" (38%).

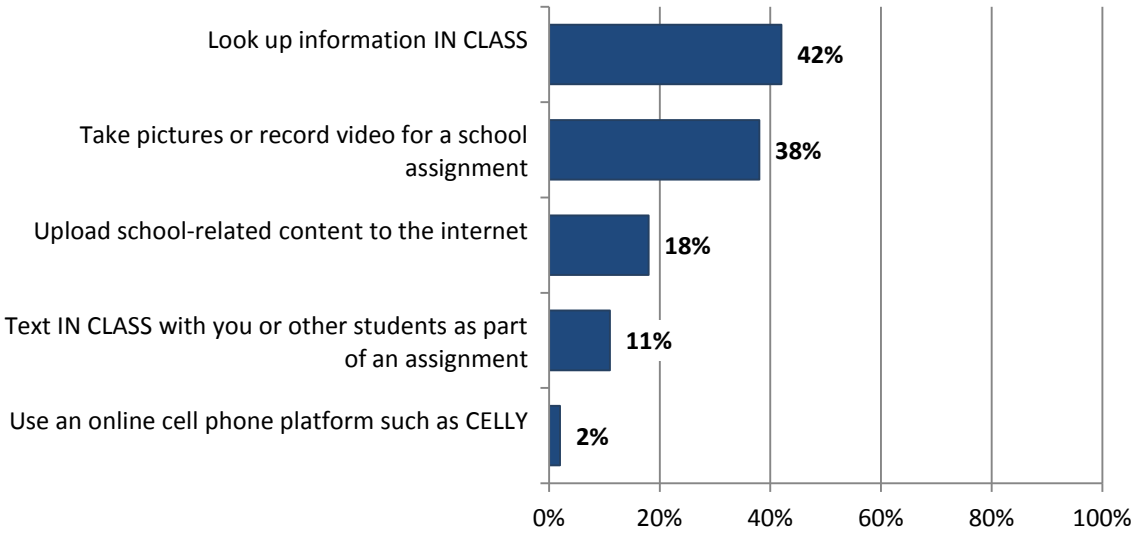
In focus groups, teachers noted how these tools can spur excitement and learning. Several teachers gave examples of students using phones to look up in class something of particular interest to them, rather than having to wait to look it up later. The teachers felt this fostered excitement for learning and capitalized on the student's interest in that moment. While some teachers noted that cell phones can be distractions in the classroom, they also expressed the belief that cell phones are "here to stay" and present an opportunity to connect with their students using devices the students are excited about.

What's amazing to me is I will throw off a comment like, particularly in my AP class I go, 'Krugman wrote a great article about it, a great editorial last week,' and [student] pulls out his phone, boom, he's got the article literally before I finish the sentence. And he says, 'Oh, I read that article.' And I find that students who are with it and who are interested, they have an unparalleled ability. Like things that my teachers in high school may have mentioned to me that kind of just in one ear out the other but I eventually became interested in, had I had more access to the internet I would become interested in so many more things so much sooner… – Teacher at a College Board school

[8] See "Just-in-Time Information Through Mobile Connections," available at http://www.pewinternet.org/Reports/2012/Just-in-time.aspx.

How are students using their cell phones in the learning process?

Percent of teachers who say their students use their phones to do each of the following…



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

The impact of cell phones is being felt less by teachers in rural areas. Just 28% of this group says that students use phones to look up information in class, and fully 64% report students are not permitted to have cell phones in class. In contrast, 52% of teachers who describe their students as mostly upper and upper-middle income say students use their phones in class to find information.

The grade level and subject matter taught also impact how phones are used in class. Among 6th-8th grade teachers, just 23% say students are using phones in class to look things up, compared with 43% of 9th-10th grade teachers and 49% of those teaching 11th-12th grade. Likewise, while 49% of history/social studies teachers and 45% of English teachers see students use their phones this way in class, the same is true of just 24% of math teachers and 36% of science teachers.

III. The Changing Definition of "Research"

Beyond simply shaping research habits and practices, this population of middle and high school teachers suggests that the very definition of what "research" is has changed considerably in the digital world, and that change is reflected in how their students approach the task. The growing use and popularity of search engines among all segments of the population as a critical tool for finding information is reflected in today's middle and high school students, who have not known a world without these tools. As a result, their very conception of "research" may be fundamentally different from prior generations.

"Research = Googling"

According to the teachers in this study, perhaps the most fundamental impact of the internet and digital tools on how students conduct research is how today's digital environment is changing the very definition of what "research" is and what it means to "do research." Ultimately, some teachers say, for students today, "research = Googling." Specifically asked how their students would define the term "research," most teachers felt that students would define the process as independently gathering information by "looking it up" or "Googling." And when asked how middle and high school students today "do research," the first response in every focus group, teachers and students, was "Google."

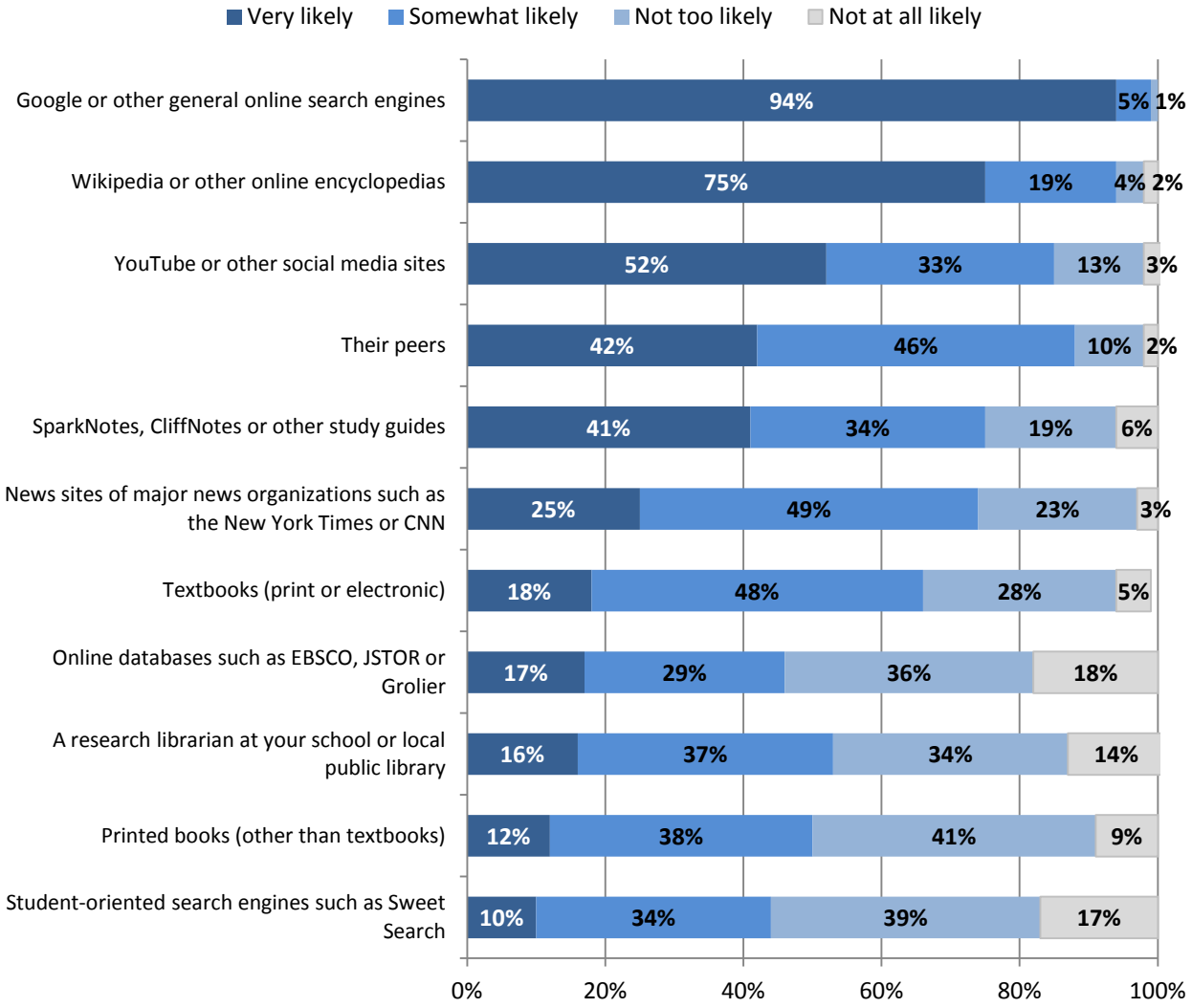
In focus group discussions, teachers framed prior generations' research practices as a time-consuming process that involved formulating a clear research question and then seeking out relevant and accurate information from trusted sources (mainly libraries), often with the aid of an expert (such as a reference librarian). In contrast, many suggest that today's students define and approach the process of "doing research" very differently. What was once a slow process that ideally included intellectual curiosity and discovery is becoming a faster-paced, short-term exercise aimed at locating just enough information to complete an assignment. Teachers noted that this trend is driven not only by the immediacy and ease of the online search process, but also the time constraints today's students face in their lives more generally.

The survey reveals search engines top the list of resources students use

Teachers' perceptions that their students use only a handful of resources and rely mainly on search engines for their research are echoed in survey results. Asked how likely their students were to use a variety of different information sources for a typical research assignment, 94% of the teachers participating in the survey said their students were "*very likely"* to use Google or other online search engines, placing it well ahead of the other sources asked about. Second to search engines was the use of Wikipedia or other online encyclopedias, which 75% of teachers said their students were *"very likely"* to use in a typical research assignment. And rounding out the top three was YouTube or other social media sites, which about half of teachers (52%) said their students were *"very likely"* to use.

Research tools teachers say their students are most likely to use

How likely, if at all, are your students to use each of the following sources in a typical research assignment?



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

Virtually all subgroups of this sample of AP and NWP teachers reported similar levels of student use of search engines. The only exception to this pattern was among teachers of the lowest income students (those living below the poverty line); this group was slightly less inclined (at 90%) to say their students are "very likely" to use search engines in a typical research assignment. This group was also among the least likely to report their students are "very likely" to use Wikipedia and other online encyclopedias (68% compared with 75% of the total sample). In contrast, 80% of teachers whose students are described as mostly upper and upper middle income say their students are "very likely" to use sites like Wikipedia.

The use of online encyclopedias as research tools also varied slightly by subject taught, with English teachers at the low end (69%) and science teachers at the high end (82%) of the range of those saying their students are "very likely" to use this source. English teachers are also the least likely to describe their students as "very likely" to use YouTube and other social media sites in a typical research assignment, with 44% reporting this level of use. The figure for the sample of teachers as a whole is slightly higher at 52%.

More "traditional" sources of information, such as textbooks, print books, online databases, and research librarians ranked well below these newly emerging technologies. Fewer than one in five teachers said their students are "very likely" to use any of these sources in typical research assignments. In the case of online databases and printed books, half or more of the teachers who participated in the survey said their students are "not too likely" or "not at all likely" to use these sources. In fact, fewer teachers said their students are likely to use these sources than to use their peers, study guides such as SparkNotes or CliffNotes, or the websites of major news organizations.

When it comes to the use of print books, the findings across all subgroups in this sample of teachers are surprisingly consistent. Teachers of the poorest students—those living below the poverty line—stand out slightly in that they most commonly say their students are "very likely" to use print books in their research assignments (19% say this). Also among the teacher subgroups particularly likely to say their students are "very likely" to use print books in research assignments are middle school teachers (19%) when compared with 9th-10th grade teachers (12%) and 11th-12th grade teachers (11%). At the other end of the range, science (7%) and math (9%) teachers are particularly *un*likely to say print books are a common source for their students.

Among the subgroups of this sample who are most inclined to say their students are "very likely" to use research librarians as a source are English teachers (20%) and teachers ages 55 and older (22%). But again, these figures are only slightly higher than the 16% of all teachers who say this is the case.

In focus groups, teachers noted that students prefer the internet because they find it a more interesting and entertaining platform. While the internet is a "cool" place to do research, other more traditional sources are perceived as "boring" by students. The internet offers multi-media content, links to additional information, interactive formats, and textbooks and other print books pale in comparison.

Traditional Textbooks are one-dimensional. They aren't interactive. They don't let me go somewhere else if I want more information. There's no sound, no movies, no hyperlinks. Students are accustomed to interacting with text. I think that's why textbooks on the iPad have been successful. – National Writing Project teacher

Last week, I gave my students twenty questions posed by the guys at Flocabulary in conjunction with the Wikipedia Blackout in Response to SOPA. The questions ranged from What is the State Bird of Arkansas" to "Who won Super Bowl X?" to "Who won the Republican primary last week?" Since the students could not use Wikipedia, it was interesting to see what they went to next: Ask.com, About.com. Dogpile.com, Google.com, Answers.com, and a host of other sites like these that are a part of my students' collective toolbox when it comes to securing sources from the web. But when they were answering the one regarding the Super Bowl, none of the students in the six classes I teach ever thought to consult The National Football League. Further, when a question was posed about the first Starbucks, none of my students thought to ask anyone else in the room for their residential expertise. – National Writing Project teacher

Teaching students to do effective searches like SweetSearch.com helps them to understand that a discourse community does exist in regard to their selected subject and these parties often--well always--offer readily citable information wherein their traditional tried and true searches do not. – National Writing Project teacher

Students in my school setting know Yahoo and Google and as I have mentioned before, they think whatever they find on the internet is true. I teach my students to look at the initial source and see if they have any credible individuals to back up their research. Sometimes this is time consuming, but they do figure out there are bogus sites out there. I think students need to know there are people out there with websites just because they can have them. Students see the internet as a cool place where they can get quick information. They don't know how to use it properly. I am not sure there are adults that know how to use it properly. – National Writing Project teacher

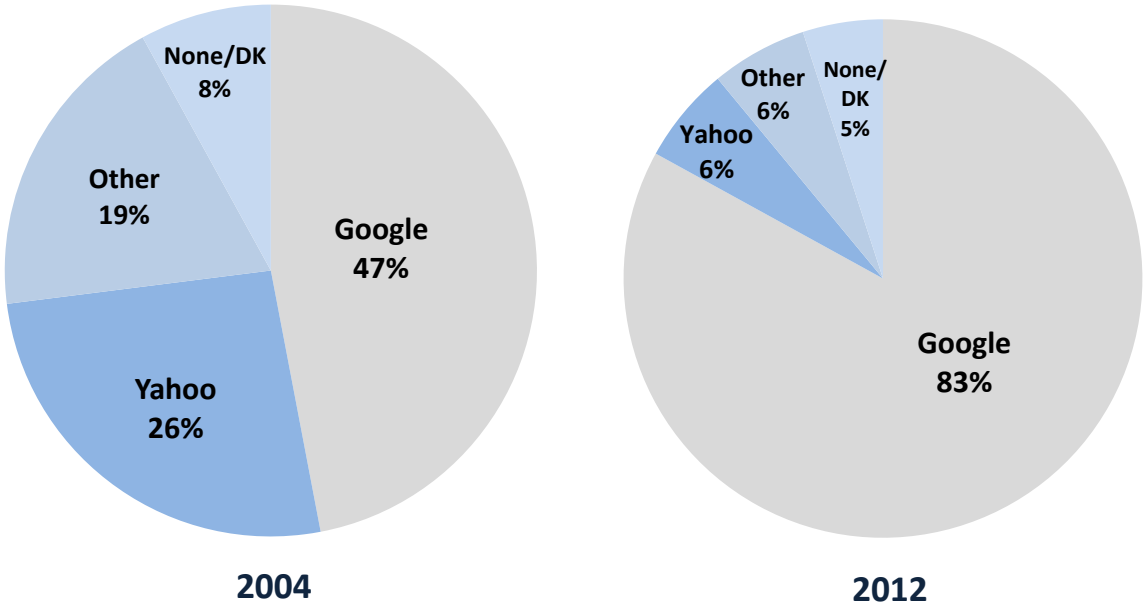
Teens are not alone in their reliance on search engines

The trend among teens to equate finding information with “Googling” mirrors trends seen in adults over the past decade. Over time, Pew Internet’s surveys of adults have consistently shown that search engine use tops the list of most popular online activities, along with email. Currently, 91% of online adults use search engines to find information on the web, up from 84% in June 2004. On any given day online, 59% of those using the internet use search engines. In 2004 that figure stood at just 30% of

internet users.[9] Moreover, among adult search users, Google is far and away the most used search engine with Yahoo placing a distant second, and its dominance is growing over time.

Google is far and away the search engine of choice among adult search engine users,

% of adult search users who answered the question: Which search engine do you use MOST OFTEN?



Source: The Pew Research Center's Internet & American Life Project Winter 2012 Tracking Survey, January 20-February 19, 2012. N=2,253 adults, age 18 and older, including 901 cell phone interviews. Interviews conducted in English and Spanish.

Not only are adults increasingly reliant on search engines as an information resource, but they also report generally trusting the results they get and feeling the quality and relevance of the information provided by search engines is improving over time.[10] Specifically:

- 91% of adult search engine users say they always or most of the time find the information they are seeking when they use search engines
- 73% of adult search engine users say that *most* or *all* of the information they find using search engines is accurate and trustworthy
- 66% of adult search engine users say search engines are a fair and unbiased source of information
- 55% of adult search engine users say that, in their experience, the quality of search results is getting better over time, while just 4% say it has gotten worse

[9] See "Search and Email Still Top the List of Most Popular Online Activities," available at http://www.pewinternet.org/Reports/2011/Search-and-email.aspx

[10] "Search Engine Use 2012," available at http://www.pewinternet.org/Press-Releases/2012/Search-Engine-Use-2012.aspx.

- 52% of adult search engine users say search engine results have gotten more relevant and useful over time, while just 7% report that results have gotten less relevant
- 56% of adult search engine users say they are *very* confident in their search abilities, while only 6% say they are *not too* or *not at all* confident
- 86% of adult search engine users report that they have learned something new or important using a search engine that really helped them or increased their knowledge
- 50% of adult search engine users say they have found an obscure fact using a search engine that they thought they would not be able to find

In contrast, fewer adult search users report experiencing negative outcomes:

- 41% report getting conflicting information in search results and being unable to determine which information is correct
- 38% say they sometimes feel overwhelmed by the amount of information found using a search engine
- 34% feel that critical information is sometimes missing from search results

The teachers surveyed are likewise heavy search engine users, and are very confident in their searching abilities

The teachers in our sample are likewise part of the "Googling" trend. Asked about their own use of different online tools, 100% of the teachers participating in the survey said they use online search engines to find information online, with 90% naming Google as the search engine they use most often.

Overall, compared with all U.S. adults, this population of teachers is more confident in their own search abilities. Almost three-quarters (73%) of these middle and high school teachers say they are "very confident" in their own search abilities, with another 26% saying they are "somewhat confident." Of the more than 2,000 teachers surveyed, only 1% describe themselves as "not too confident" when it comes to using search engines.

While this sample of AP and NWP teachers has greater confidence than adults as a whole in their search abilities, they have considerably less faith in the accuracy of the information they find using these tools. Just 5% of teachers participating in the survey say that "all or almost all" of the information they find using search engines is accurate or trustworthy, compared with 28% of all U.S. adult search users.

The AP and NWP teachers surveyed here are also very different from adults as a whole in that the youngest teachers have *less* faith in the accuracy of search results. Among the general population, younger adults tend to have *more* faith in the trustworthiness and accuracy of the search results they get. Yet teachers mirror the general adult population in that younger teachers have more confidence in their search abilities than their older counterparts:

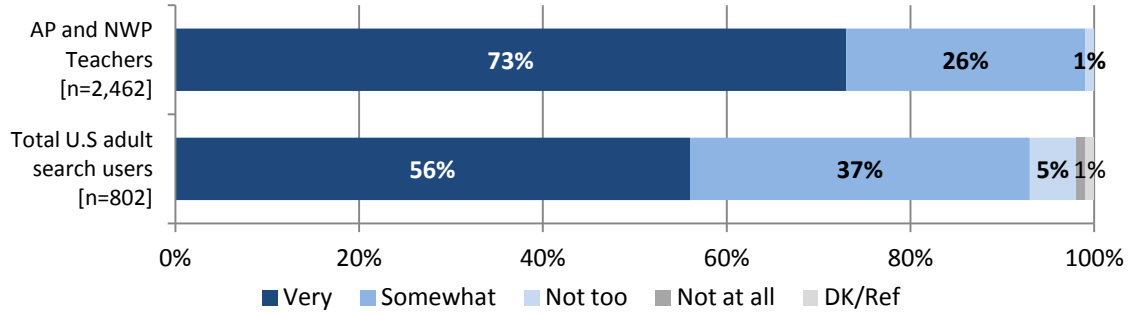
- **50%** of teachers ages 22-34 say that all or most of the information they find using search

engines is accurate or trustworthy, compared with **61%** of teachers ages 35-54 and **68%** of teachers age 55 and older.

- Meanwhile, **80%** of the youngest teachers say they are “very confident” in their search abilities, compared with **75%** of 35-54 year-old teachers and **63%** of teachers ages 55 and older.

Teachers participating in the survey are very confident in their search abilities

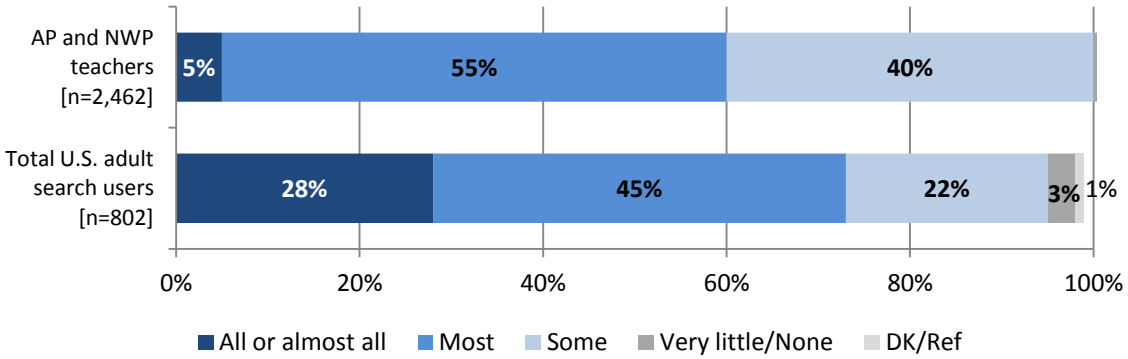
How CONFIDENT do you feel about your own searching abilities when using a search engine to find information online?



Source: Adult data from Pew Research Center's Internet & American Life Project Winter 2012 Tracking Survey, January 20-February 19, 2012. N=2,253 adults, age 18 and older, including 901 cell phone interviews. Interviews conducted in English and Spanish. Teacher data from Pew Research Center's Internet & American Life Project Online Survey of Teachers, March 7 to April 23, 2012, n=2,462 middle and high school teachers.

Teachers have less faith in the accuracy of the information they find using search engines

In general, how much of the information you find using search engines do you think is accurate or trustworthy?



Source: Adults data from Pew Research Center's Internet & American Life Project Winter 2012 Tracking Survey, January 20-February 19, 2012. N=2,253 adults, age 18 and older, including 901 cell phone interviews. Interviews conducted in English and Spanish. Teacher data from Pew Research Center's Internet & American Life Project Online Survey of Teachers, March 7 to April 23, 2012, n=2,462 middle and high school teachers.

IV. Teaching Research Skills in Today's Digital Environment

Given these findings about how students today define "research" and approach the research process, teachers are faced with identifying and teaching middle and high school students the skills they will need to be smart information seekers in the digital age. The data indicate that teachers in this study place tremendous value on research skills, with most reporting assigning a research paper to their students in the 2011-2012 academic year and spending class time teaching various research skills to their students. These lessons are aimed at addressing deficits they see in today's students. Most notable among these is the inability to judge the quality of information, a skill the vast majority of teachers deem "essential" for their students' future success.

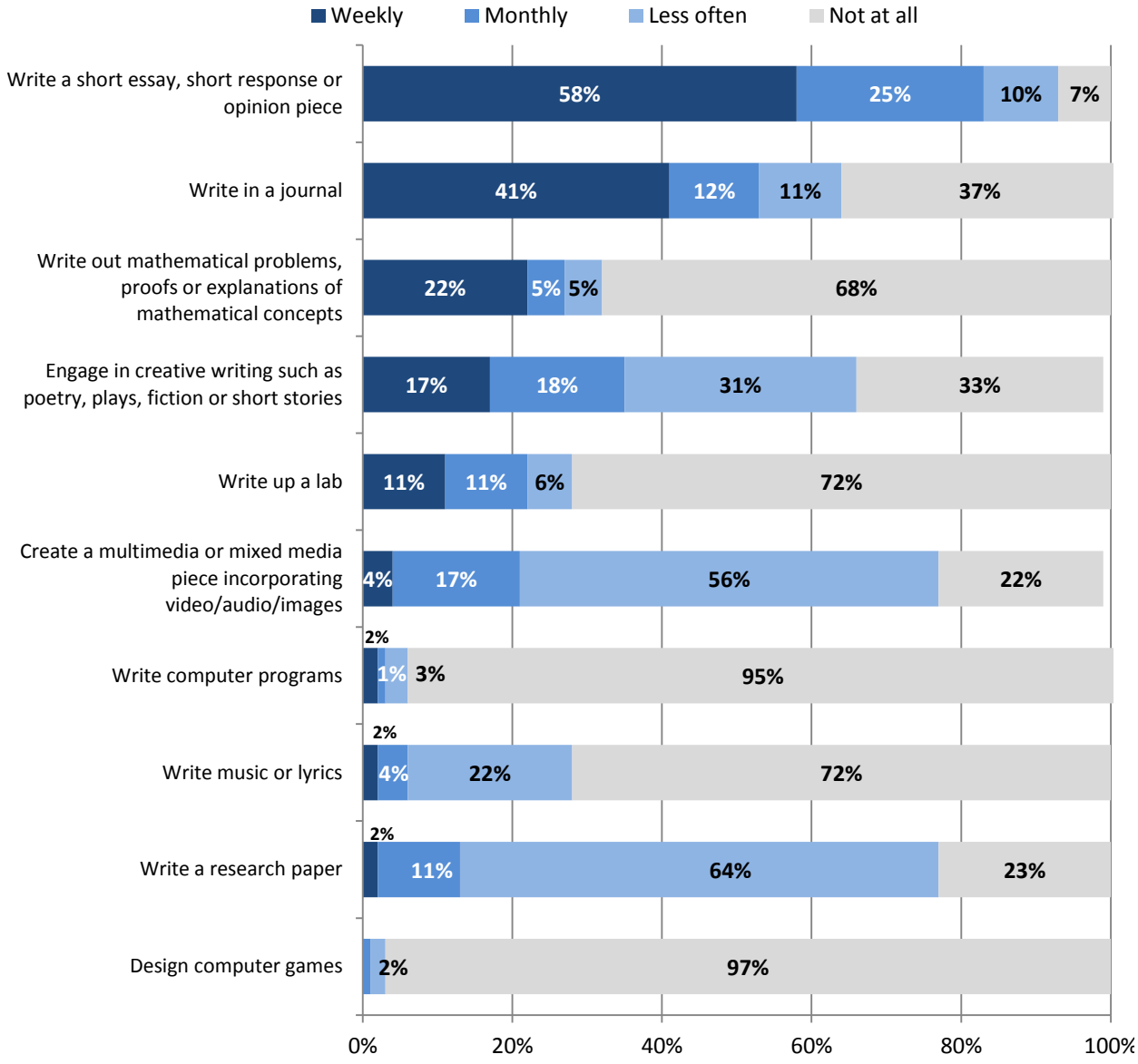
Most teachers in the study assigned a research paper in the 2011-2012 academic year

Among the teachers in the study, the majority assigned at least one research paper to their middle and high school students in the 2011-2012 academic year. As the graphic below suggests, among this sample of teachers, short essays and journaling are the most commonly assigned writing tasks, with more than half of the sample (58%) having their students write short essays, short responses, or opinion pieces at least once a week and 41% having students journal on a weekly basis.

Research papers—along with multimedia assignments and creative writing in the form of plays or short stories—are not assigned by many teachers on a frequent basis, but are assigned at some point during the academic year by most of the teachers in our sample. Just over three-quarters of these teachers report having students complete a research paper (77%) or a multimedia project (77%) at some point during the current academic year. Two-thirds (66%) have students complete a creative writing assignment during the year as well, such as writing poetry, a play, a short story, or piece of fiction.

Types of assignments teachers gave students in the 2011-12 academic year

Thinking about the 2011-12 academic year, please tell us about how often, if at all, you have your students…



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

Some teachers are more likely than others to assign a research paper; not surprising given the different skills and subjects being taught. Fully 94% of the English teachers in this sample assigned at least one research paper in the past academic year, compared with 83% of history/social studies teachers, 68% of science teachers, and 36% of math teachers. Almost nine in ten teachers who participated in the NWP Summer Institute (88%) reported assigning a research paper in the 2011-2012 academic year.

Most teachers rate their students “good” or “fair” on a variety of specific research skills

Despite the overall perception that the internet and digital technologies have a “mostly positive” impact on students’ research habits, in most cases the AP and NWP teachers surveyed rate the specific research skills of their students “good” or “fair.” Very few teachers rate their students “excellent” on any of the research skills asked about in the survey.

It kills me to see students typing in whole questions: "What does it mean to leave a digital footprint on today's society?" into Google. The funny thing is they actually get disappointed when it doesn't spit back an answer. I have actually found this to be a great lesson on synonyms - helping them to come up with other key words that might be helpful in their search as well. We will also spend some time looking at how advanced searches work. – National Writing Project teacher

Overall, teachers gave students the highest ratings on their ability to use appropriate and effective search terms and understanding how online search results are generated. Yet even for these top items, only about one-quarter of teachers rated students “excellent” or “very good.” And in focus groups, many teachers suggested that despite the current generation of middle and high school students being raised in the “digital age,” they are often surprised at how poor their students’ search abilities are.

Reflecting teachers’ concerns about the impact of the internet on students’ expectations of “instant information,” the skill they rate students lowest on is “patience and determination in looking for information that is hard to find.” Fully 43% of the teachers participating in the survey said that overall they would rate their students “poor” in this regard, and another 35% rate their students “fair” when it comes to patiently pursuing information they need.

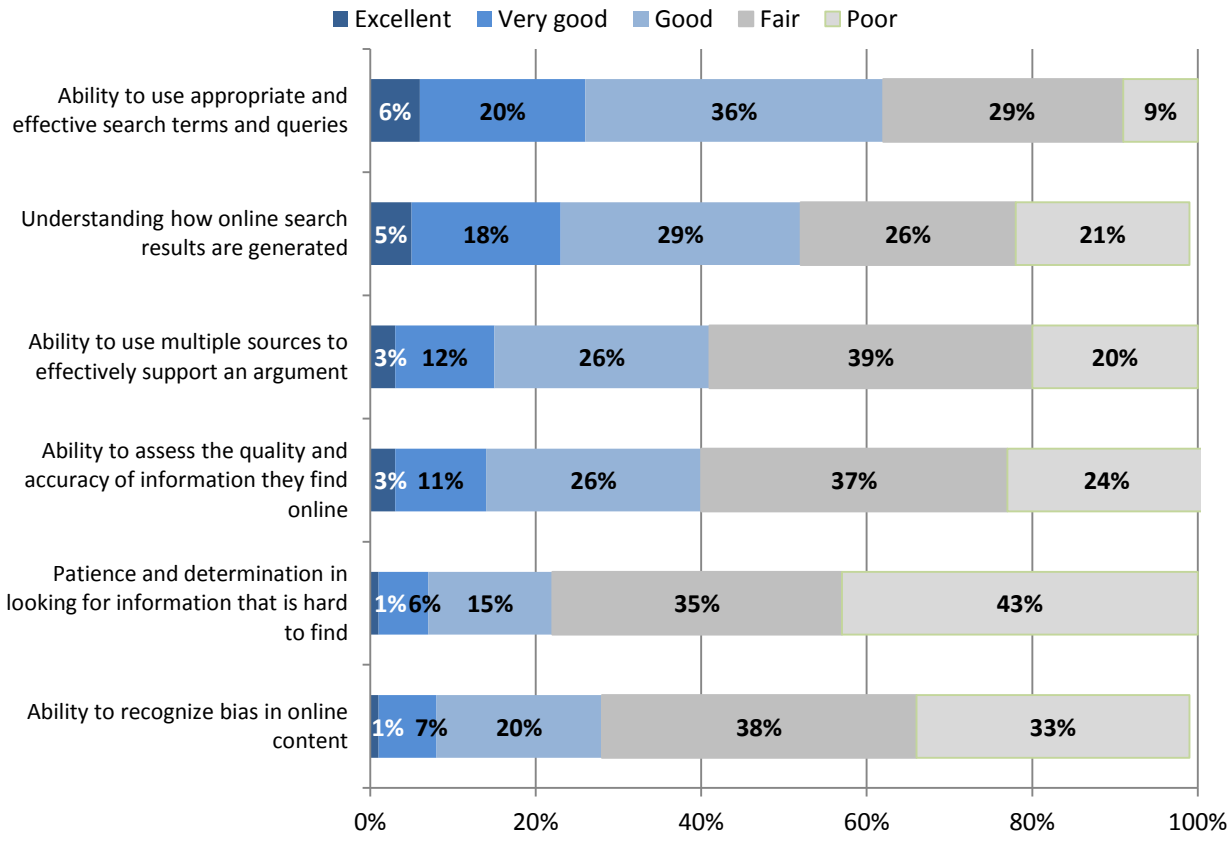
A majority of survey respondents also described their students as “fair” or “poor” when it comes to:

- Using multiple sources effectively to support an argument
- Assessing the quality and accuracy of information they find online, and
- Recognizing bias in online content

These relatively low ratings (of what are by and large honors and advanced students) may reflect teachers’ expectations of the skill level they would like to help their students reach, yet survey results indicate that teachers see room for students to improve in most, if not all, of these areas.

Most teachers give students modest ratings of "good" or "fair" when it comes to specific research skills

Overall, how would you rate your students on each of the following?



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

Two patterns emerge in looking at the ratings teachers give their students on their research skills. In the case of all but one skill asked about, more teachers of the lowest income students rate their students "poor" than do teachers of higher income students. The only exception to this pattern is "Patience and determination in looking for information that is hard to find" on which teachers across different socioeconomic levels rate their students equally.

A second consistent pattern that emerges is that teachers with more classroom experience (16 years or more) perceive their students' skills more positively across the board. Teachers who have been in the classroom for 15 or fewer years, in contrast, seem to have more negative views of their students' research skills and more of them rate their students "poor" on every skill asked about.

When it comes to patience and determination finding information, the lowest marks come from English

teachers, 50% of whom rate their students "poor" in this regard. Looking just at National Writing Project teachers, 53% of this group give their students the lowest rating of "poor."

Teachers of the lowest income students and teachers with fewer years in the classroom give their students lower ratings on almost every skill asked about

% of each group of teachers who say their students' skills are "poor" when it comes to…	Total	Students mostly below poverty level	Students mostly upper/ upper middle class	15 years or less teaching	16 years or more teaching
Patience and determination in looking for information that is hard to find	43%	42%	42%	49%	36%
Ability to recognize bias in online content	33	47	29	38	29
Ability to assess the quality and accuracy of information they find	24	34	21	28	20
Understanding how online search results are generated	21	29	19	26	17
Ability to use multiple sources to effectively support an argument	20	32	14	23	17
Ability to use appropriate and effective search terms and queries	9	15	7	12	6

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

What research skills should be taught?

Both the survey and focus group asked teachers which research skills, in particular, are critical for the current generation of middle and high school students to learn. In focus groups, the most commonly cited skills were how to evaluate the quality of information, how to recognize what information is and is not relevant to the question at hand, and how to synthesize information from multiple sources into a coherent piece of work.

They need to know how to find information and how to judge how appropriate and accurate the material is. They need to be able to assess the biases in their sources. They need to be able to find the material that will help them. –AP US History teacher

The impact of the Internet is that a lot of students are overwhelmed with the amount of information. So, they don't really know exactly which is the best site because there are so many; there are millions of links per word, so [the most critical skill is] determining importance, yes. Determining importance – saliency determination. – Teacher at College Board School

The Internet is empowering, but it's empowering everyone's opinion and everyone wants to get their information out there, and we need to try to teach the students to be more discriminators – have greater discrimination about the quality of the information they're accessing. – Teacher at College Board School

I teach tenth grade and twelfth grade Social Studies. It's becoming much more important that the students – it's wonderful to have the access to information – but now more than ever, I feel that they need to be smart consumers of information. And I feel students are progressively losing their ability to sort out what's good information, what's reliable information, and basically filter…As schools go on and Internet access becomes more prevalent and computers standard in the classroom, teaching is changing from not just teaching you how to process and restate and think about information, but also we're going to have to teach them the skill to know how to filter this information. – Teacher at College Board School

Survey findings echo these sentiments. The vast majority of teachers surveyed feel that "courses or content focusing on digital literacy *must* be incorporated into every school's curriculum," indicating just how critical they feel the ability to locate and assess information in the digital world is. About half of the teachers in the study (47%) say they "strongly agree" and another 44% "somewhat agree" with this proposition, meaning that 93% of teachers support this curriculum change. NWP Summer Institute teachers are particularly likely to take this view, with 59% saying they "strongly agree" that this curriculum change is needed. Also expressing strong views on this question are teachers of students living below the poverty line, 60% of whom "strongly agree" such courses are needed.

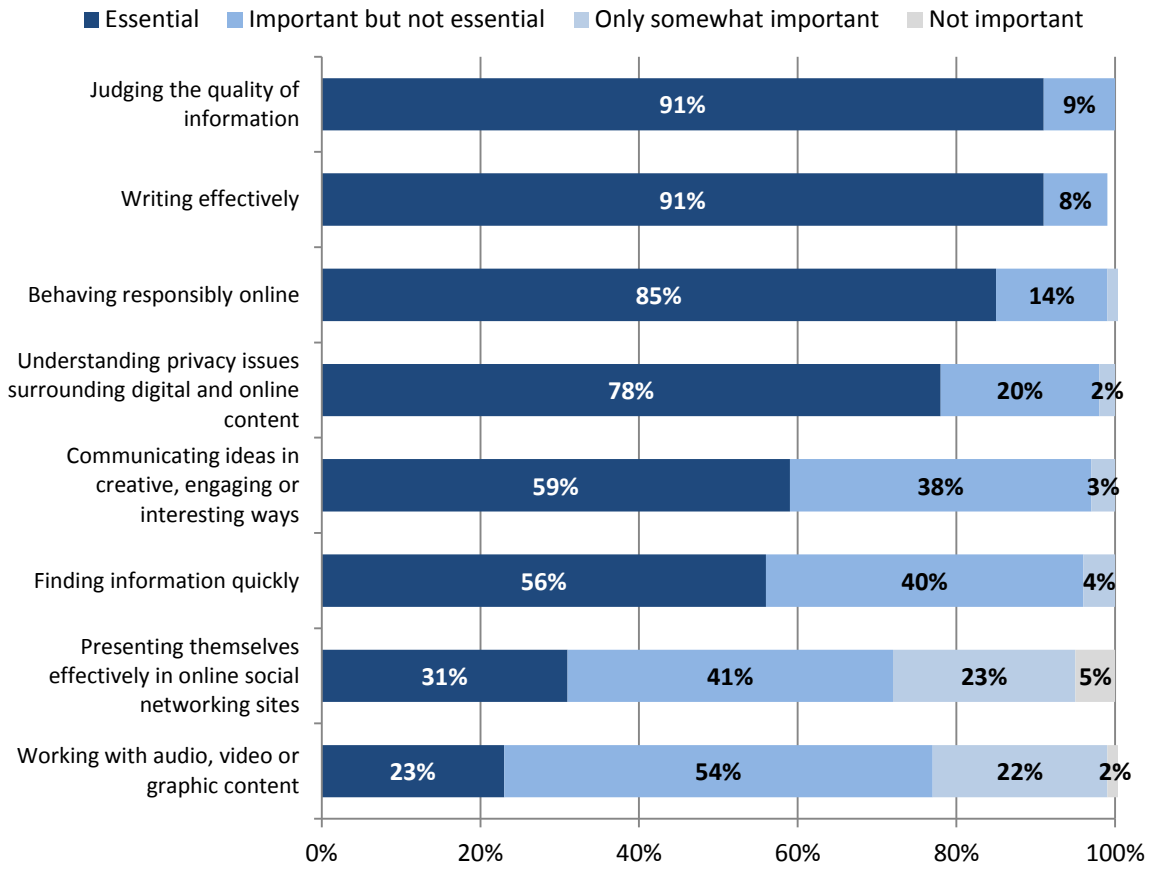
Moreover, asked to place a value on various skills today's students may need in the future, "judging the quality of information" tops the list, along with "writing effectively." These two skills were described as "essential" by 91% of the teachers who participated in the survey. Other skills relevant to the current digital culture also ranked high, with large majorities of teachers saying that "behaving responsibly online" (85%) and "understanding privacy issues surrounding online and digital content" (78%) are "essential" to their students' later success in life.

While evaluating the quality of information tops the list of essential skills, 56% of survey participants also feel that "finding information quickly" is essential to success. Another 40% describe this skill as "important, but not essential," indicating that while teachers place tremendous value on teaching their students to assess the quality of information, they also appreciate the importance of speed in today's fast-moving digital world. Those who have been teaching longer (16 years or more) are slightly more likely than those teaching 15 years or fewer to describe this skill as "essential" (60% of more experienced teachers v. 52% of newer teachers) but otherwise no notable differences exist across subgroups of teachers.

Among the skills included in the survey, those viewed as less essential to students' success are "presenting themselves effectively in online social networking sites" and "working with audio, video, or graphic content." Fewer than one in three teachers saw either of these skills as "essential" to their students' later success, though substantial percentages do describe each of these skills as "important, but not essential."

What Skills Do Students Need For the Future?

How important do you feel each of the following skills is for your students to be successful in life?



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

When should these skills be taught, and by whom?

While the AP and NWP teachers in the study generally agreed on what skills are needed and that these skills should be a part of standard curricula, there was less consistency in their opinions of when these skills should be taught and by whom. Asked at what point in their educational careers students should learn these critical research skills, many focus group participants felt they should be taught in elementary school, and that students should already possess these skills prior to entering middle school or high school. Others felt that elementary students may not be ready to learn the nuances of bias, fair use, and salience, and that these more advances skills are better taught later in a student's career.

The question of who should be mainly responsible for this part of the curriculum was also open to debate in focus groups, with some teachers openly acknowledging that they do not currently feel qualified to teach some of these skills. Some reported that their school's English department takes the lead in developing research skills, and that their own role is mainly reinforcing these skills. Yet others suggested these skills need to be taught by all teachers across the curriculum, and that library staff can be a key part of that process.

The first thing students need to learn is to discern the quality of a source. After that, they need to be able to compile information from various sources and synthesize their own work, in their own words. Students must cite all sources for their work. This should start in the elementary grades, and does in my district. – AP Chemistry teacher

Credibility, validity, purpose, and reliability are all important aspects to consider when viewing an electronic resource. Also, students need to be aware of how recent web based information is by knowing how to check publishing dates. I think some of these skills can be taught as early as 3rd or 4th grade from the standpoint of 'how do you know when something is true?' –AP Biology teacher

Teachers must take the time, and take on the responsibility of teaching students how to search more wisely on the internet. I do not think enough time is devoted to this task because everyone thinks it is someone else's job to do it…Regardless of what is done, these skills have to be explicitly taught. – National Writing Project teacher

I find that my students do not have sound research skills in place in the 8th grade...and I'm not so certain that it is the best use of their time to tackle an isolated weighty research project. My instincts tell me to develop ongoing research expectations, in smaller, manageable chunks, so that they receive more guidance on more of the work/research. I'd rather know that my students had a chance to get better at the process of reading and researching for one focused idea than raking them through a project just to rake them through a project. There is less of chance that a student would plagiarize and an even better chance that they would learn what the difference is between work that is plagiarized and that which is not. – National Writing Project teacher

I demonstrate how to do good research in my class and then I assign projects and papers where they have to research. I do source checks before the projects are due to make sure students are on the right track. I really rely on skills they learned in their English classes. –AP Biology teacher

I try my best to teach students how to choose credible sources, but I rely on the expertise of others for the ins and outs of this very difficult to navigate lesson. Thank goodness there are so many resources to help me with this, but I admit. I have to do more. – National Writing Project teacher

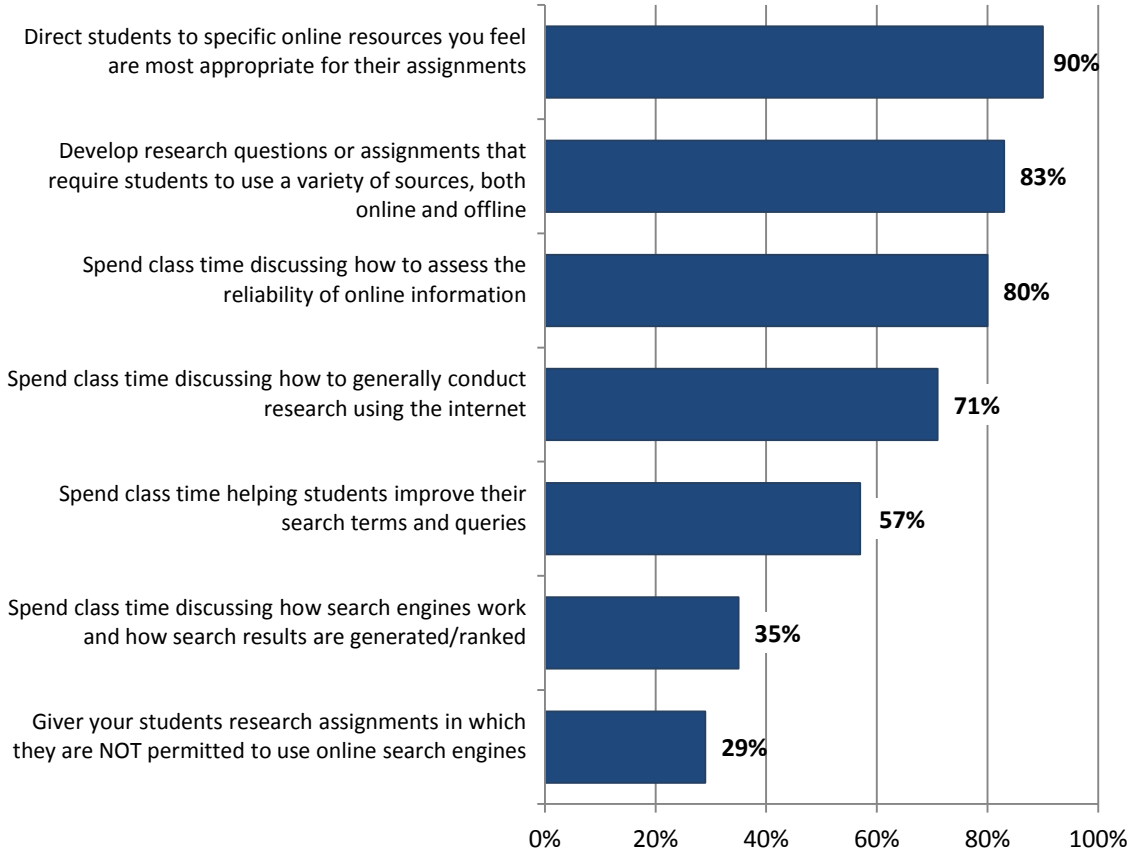
Current approaches to teaching critical research skills

Asked about different approaches they use to develop effective research skills in their students, two different tracts emerge—first, spending class time teaching and developing these skills, and second, designing assignments that require students to use new or different approaches.

In terms of devoting class time to this area, fully eight in ten of the AP and NWP teachers who participated in the survey report spending class time discussing how to assess the reliability of online information, and seven in ten spend class time generally discussing how to conduct research online. Fewer teachers, but still a majority, say they spend class time helping students improve search terms and queries, yet just one-third devote class time to helping students understand how search engines work and how search results are actually generated and ranked.

Different ways teachers address student research skills

Percent of teachers who do each of the following…



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

A second strategy these middle and high school teachers use is intentionally constructing or shaping research assignments in ways that either direct students to the best online resources, or require

students to expand the repertoire of sources they use. Nine in ten survey respondents report directing their students to specific online resources they feel are most appropriate for a particular assignment, and 83% develop research questions or assignments that require students to use a variety of sources, both online and offline. Substantially fewer teachers, just 29%, assign work to students in which they forbid the use of online sources.

Suggestions in the focus groups that English teachers generally take the lead on teaching these skills were echoed by survey results. English teachers in this sample are the most likely to report implementing each one of these lessons/approaches, followed closely by history/social studies teachers. For example, 93% of English teachers in the sample report developing assignments that require students to use a variety of sources, followed by 91% of history/social studies teachers, 77% of science teachers, and 47% of math teachers. Similarly, when it comes to spending class time discussing how to assess the reliability of information, English teachers take the lead (94%), followed by history/social studies teachers (90%), then science teachers (69%) and math teachers (46%).

The merits of these latter strategies—structuring or shaping assignments in ways that required students to use particular sources or more varied sources—was discussed at length in focus groups. Many teachers reported requiring students to utilize offline resources in an effort to familiarize them with materials they might not otherwise use. Others said they stress to their students the importance of paying attention to website domains, and encourage or require them to use .gov, .org or .edu sites. And many teachers reported banning the use of particular online sources, most commonly those with user-generated content such as Wikipedia, or telling students exactly which online resources are most useful or even permissible for particular assignments.

At the same time, teachers felt that eliminating the use of all online resources or even particular online resources in assignments is unrealistic and can be counterproductive. Because students are already reliant on these sources when they arrive in middle and high school, and have a comfort level with them, many teachers feel a better approach is to teach students how to use these tools effectively. Indeed, in student focus groups, teens acknowledged that even when they are “not allowed” to use Wikipedia in their research, it is still often their “first stop” in completing an assignment. Students feel that Wikipedia’s fairly short encyclopedic entries provide them with a quick “overview” of a topic from which to orient their research process, and some teachers agreed. Thus, rather than attempt to control which websites students utilize in completing school assignments, or even their very use of online resources, the underlying philosophy for many is teaching their students to be better information consumers in the digital arena.

I'd take the choice out of it. I'd tell them which sources to access, because the bottom line is, I'm so pressed for the time that rather than risk them going out and finding the wrong information, I tell them what sources to access and then you give them five sources and you say, 'These are the approved sources. Do not go outside this realm.' And ultimately that's probably self-defeating because they're not always going to be given that narrow focus like that, but I don't teach in a theoretical world. – Teacher at College Board School

We almost do the opposite in our classroom. I'm a special education teacher and we tell them what sources we don't like and so now they can tell us what sources we don't like that they shouldn't use. – Teacher at College Board School

I assign work that requires them to use online resources such as JSTOR, EBSCO, Proquest, and other databases to which our school subscribes. –AP English Language teacher

So, how do you know what's biased and what's unbiased? How do you know who's an expert and who's working out of their basement, saying they're a doctor? So, we kind of tell them, as a first point, to look at the [domain] – is it .edu, is it .gov, is it .org you can trust? We try to give them those pointers and then we try to say, look at the About Us page, try to do some research on the person or the company using the website. – Teacher at College Board School

I demonstrate how to do good research in my class and then I assign projects and papers where they have to research. I do source checks before the projects are due to make sure students are on the right track. I really rely on skills they learned in their English classes. –AP Biology teacher

Credibility and usefulness of sources is a part of every conversation about research/inquiry projects that we undertake. This can take many forms. For some assignments I have mandated that kids solely get research from articles found in one of the databases the school subscribes to. For other projects we discuss this idea of credibility and I walk around and look at where they're headed for research and if I need to step in and start a conversation about a particular source my student and I have that discussion. – National Writing Project teacher

Many focus group participants also reported assigning a large research project to be completed over the course of the full academic year, which they can break into smaller steps to help students develop an understanding of the various pieces that go into successful research as well as the time that must be devoted to each. In designing these research assignments, focus group participants suggested the following elements are particularly important:

- Showing students how to develop a focused research question and a plan of what they should be looking for, to help them "sort through the noise"
- Requiring students to utilize more than online resources
- Teaching students how to properly cite the sources they use, particularly online sources
- Developing a student's ability to determine the timeliness, relevance, and quality of the online information they find
- Teaching students how to appropriately paraphrase and synthesize information

No matter the grade level I break [research] down in a step by step process. First working with documents, then using our learning center to find source material, establishing the credibility of that information and then using it in an essay or project. –AP US History teacher

In all of my classes, we are visiting the library/lab on some kind of regular basis whether it's for a persuasive essay, speech, research paper, etc. Students mark up the article, find the author's argument/thesis, create their own, find opposing views, find supporting views, etc. These are all research skills—break it down (analyze) to write it down (synthesize). –AP English Language teacher

Much of searching for information today is about evaluation of sources. Students often stick to what they know and they often do not expand on utilizing their search skills, so yes, I teach them about it. They tend to stick to Google. I challenge them to use various sources and explore databases. When teaching this I often explore various false sites with them. Sometimes I establish various credibility tests. I find fun material and they have to determine if it is credible or not and why. I pull material from various websites, to tabloids, to internet email hoaxes, to credible sources. They decide if it is credible material or not and how to determine if something is credible. We explore various criteria for exploring if something is credible. I also teach this with visual literacy and we explore doctored images, etc. I love pulling an image of a website that states that something happened to their favorite celebrity. They debate what is true and how to find the truth. – National Writing Project teacher

At least half of my curriculum is devoted to doing research online. We spend a lot of time noticing differences between sources, but without judgment. Instead of asking about the credibility of sources, we spend a lot more time wondering if a particular source is of value to my writing. A personal reflection in a blog might provide the perfect turn of phrase to quote in your own argument. We also spend a lot of time teaching student how to cite their sources, and in this process we talk about reliability and the need to have more than one source, no matter where it comes from. I could go on for some time about this. It is the heart of my work with students, but it isn't something that easily fits into a set of lessons. There are slowly evolving critical lenses that I see my students beginning to use when they are immersed in self directed, passion-based projects. The simple ways of determining credibility just don't make sense. Who is to say that a podcast is less reliable than a Wikipedia page. A lot depends on your purpose, your critical use, and the other sources that surround any one source. It's too complicated to teach outside of the ongoing practice of doing research. – National Writing Project teacher

Usually when we are doing some kind of research in my class I will scaffold it enough where students have a pretty good idea where to go, but the issue also becomes what do they do when they get to where they need to be. I read an interesting study about how people read websites, much different based on age and much different than we read print. I usually bring this study up with the kids so we can have conversations about how to best use our time and find the best information. – National Writing Project teacher

I usually preface a long-range research assignment with a challenge of my own. I'll remind them of our discussion about "Is Google Making us Stupid?" where they essentially said that their generation is being dismissed too quickly by the pundits who say they can't think deeply. When I remind them that a lot of people say that their generation wants instant gratification of information, that raises some hackles. If they're aware of the obstacles of an in-depth assignment, they're more prepared to challenge those assumptions. I guess I'd say that a big part of my teaching is attuning my students to how we think as we move through the research process. Make those negative assumptions part of the discussion and a lot of the students see that as a call to move past them. My students aren't shallow, lazy and stupid, and they don't want to be thought of as such. – National Writing Project teacher

Challenges to teaching research skills in today's digital environment

In general, the AP and NWP teachers in the study feel their students are very receptive to learning effective research skills, but point out that teaching these skills is not without challenges. By far, the most commonly cited challenge is simply a lack of time to devote to developing effective lessons and teaching skills in class. Teachers repeatedly noted the difficulty in covering these skills in addition to the other content they are required to cover. They also note that they themselves must become savvy information consumers before they can impart these skills to their students.

Among other challenges teachers report facing are pay walls separating them and their students from the best information online and digital access issues among their students. Teachers stressed that the best, most credible resources on the internet are often available only by subscription, thus many schools and students do not have access to what is truly the highest quality information in a particular field. In addition, they point out that for many of their students, research time is restricted by a lack of internet access at home and/or limited library hours.

The biggest challenge in any AP class in my experience is time. The volume and depth of the material is so extensive that finding the time to teach effective research is very difficult. – AP US History teacher

Time. There is never enough time to get through all of the standards and spend adequate time teaching research skills also. It takes a lot of time to do justice to teaching research skills. – AP Biology teacher

Time and access to technology are always hurdles to teaching anything. A lot of times we assign a research assignment and turn the students loose into the world to research on their own. Too often, parents do not even know what is going on in regards to this. Maybe we should work harder on getting them involved in this process. Most students are receptive to methods that will speed their research but not with what will make it better. This is another obstacle to overcome. – AP US History teacher

The other problem is the…limited number of resources that are available for free; most of the primary resources, most of the better resources have to be paid for by subscription. – Teacher at College Board School

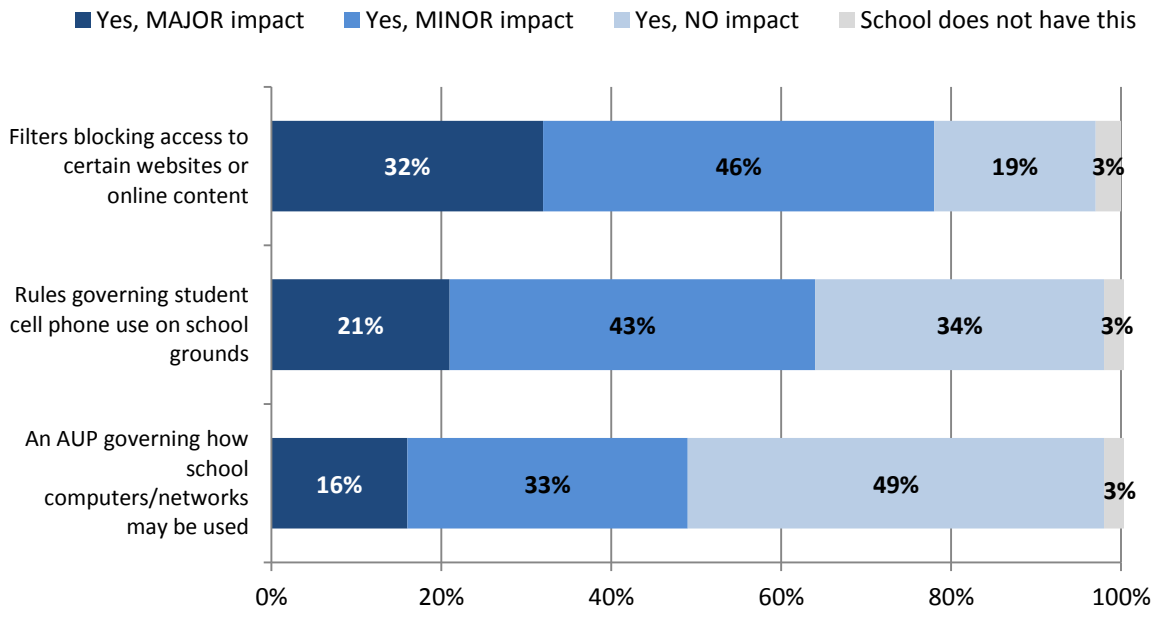
What [other teacher] said was right on the money I mean where do people go for the most reliable information? One is the Wall Street Journal *or extended subscription to the* [New York] Times *and the* Washington Post *or whatnot. That's subscriber's access. You want to go to* The Economist*, you've got to pay for it. The best sources, you've got to pay. – Teacher at College Board School*

If we had laptops in every room, we would be able to champion tat cause of 'this is how you do research' more, rather than just showing them our laptop….They have to do the research at home and they're kind of on their own. We give them pointers, but… – Teacher at College Board School

The survey also indicates that these teachers face a variety of challenges in effectively incorporating online content and digital tools into their classrooms, some of which may hinder their ability to teach students how best to conduct research online. Virtually all teachers surveyed report working in a school that employs internet filters (97%), formal policies about cell phone use (97%), and acceptable use policies or AUPs (97%). The degree to which teachers feel these different policies impact their teaching varies, with internet filters cited most often as having a "major impact" on survey participants' teaching (32%). One in five teachers (21%) say cell phone policies have a "major" impact on their teaching, and 16% say the same about their school's AUP.

The school environment may also hinder teaching effective research skills

Does your school currently have any of the following in place? If so, how much of an impact, if any, does it have on your teaching?



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

Looking more closely at subgroups of the teachers surveyed, it becomes clear that those teaching in urban areas and those teaching the lowest income students are feeling the impact of these types of restrictions more so than those living in other community types and those teaching students from mainly upper and upper middle income households. In particular, teachers of students living in poverty are at least *twice as likely* as those teaching the most affluent students to report these policies having a "major" impact on their teaching.

Teachers in urban areas and those teaching the lowest income students feel the impact of these policies more than other teachers

% of each group of teachers who say each policy has a "major" impact on their teaching…	Total	Students mostly below poverty level	Students mostly upper/ upper middle class	Large metro area or city	Small town
Filters blocking access to certain websites or online content	32%	49%	24%	37%	28%
Rules governing student cell phone use on school grounds	21	33	15	25	20
An AUP governing how school computers/networks may be used	16	25	10	18	15

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

V. Teachers' Concerns About Broader Impacts of Digital Technologies on Their Students

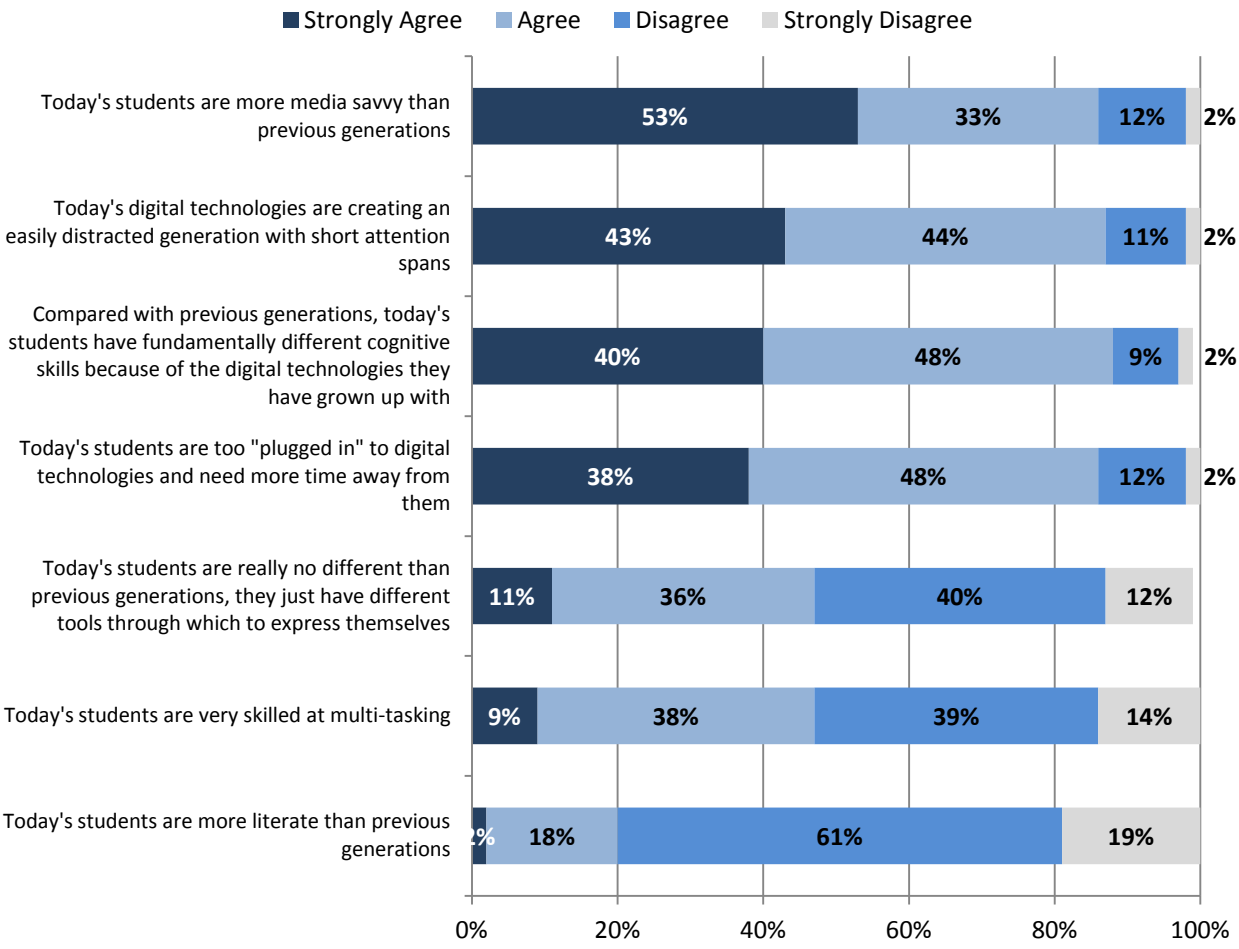
Throughout focus group discussions, teachers noted that their experiences with middle and high school students cannot be isolated from broader trends shaping this generation, and that much of what they see in their students' academic habits, characteristics, and attitudes are reflections of much broader impacts of growing up in a digital age. To probe these issues more fully, the survey posed several questions asking teachers to evaluate today's students compared to prior generations, in terms of basic skills and habits such as attention and distraction, cognition, multi-tasking, media literacy, and overall literacy. Overall, in the eyes of their teachers, today's middle and high school students compare both favorably and unfavorably with prior generations. Yet there are widely varying opinions among teachers about how "unique" this generation is, and how they compare with predecessors on specific dimensions.

Teachers are divided on whether "digital natives" are fundamentally different than prior generations of students

On the whole, teachers are divided on the question of whether today's students are fundamentally different from previous generations. For instance, 47% of teachers surveyed agree with the statement that "today's students are really no different than previous generations, they just have different tools through which to express themselves," while 52% disagree with that statement. Surprisingly, teachers' views of this statement are consistent across virtually all subgroups, including teacher age and experience, grade level taught, community type, student socioeconomic status, and subject taught.

When asked in another item, however, whether they agree or disagree that "today's students have fundamentally different cognitive skills because of the digital technologies they have grown up with" 88% of the teachers surveyed agree, including 40% who "strongly agree." Teachers of the lowest income students are most likely to "strongly agree" with this statement (46%) but the difference across student socioeconomic status only ranges from 37% (mostly lower middle income) to 46%, and there are no other notable differences across subgroups of the sample.

Teachers' views of the broad impacts of today's digital ecology



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

Focus group participants were likewise split on the question of how unique today's students are. Some feel that growing up in the digital world has significantly impacted the way today's students think and process information, yet an equal proportion of teachers expressed the opposing view, arguing that what they see in their students today is no different than what they have always encountered teaching young people. They suggest that while key habits and characteristics may take a different form, or be expressed differently, the underlying challenges they face teaching middle and high school students are the same today as they were prior to the digital explosion.

I've been teaching for 25 years and I don't think teens have changed that much. As I mentioned previously, my students can read deeply and think critically about challenging texts as well as my generation did. They are capable of doing thorough research and critically evaluate information, the can form persuasive appeals, they're effective writers. I think what's different is the amount of information that they have to critically evaluate, and the amount of spin that they have to deal with in commercial and political communication. – National Writing Project teacher

I would say that our students are asked to digest much more information than I ever was. That's got to be tough. It's tough to know which information to read deeply, which site will offer credible sources. Schools should address this more. If anything, schools are slower to respond to the needs of students now than they were in the past. Maybe, this is why it is perceived that today's students are lagging behind those of the past. If as educators, we do not accept the responsibility to teach our students the skills to navigate messages, information, multiple identities, and other demands that these technologies place on our youth, future generations will certainly fail to meet the current demands. – National Writing Project teacher

Just today in a staff meeting we were talking about students not studying for tests. Older (more experienced) teachers in the room started to lament about how students are not studying for tests the way they used to when they were in school. The teachers recalled times in their life when they would sit at the kitchen table or at the desk in their room actually going over their reviews and their notes to study and prepare for a specific tests. As I listened to them talk, I thought back to my own studying experiences. I can't say that I can remember spending tons of time studying for a specific test. If a teacher gave us a review sheet I would always complete the review sheet, but did I myself ever study
the material before the test? The answer is no, I did not. So is this current class of students really that much different from a class ten, fifteen, twenty years ago? I'm not convinced that there really is a difference…I am not convinced that this current group of students is any more or less skilled at any of the items than that of previous generations. – National Writing Project teacher

Teachers say today's students are more media savvy, but also less literate and more distracted than previous generations

Asked to evaluate this generation on more specific skills and characteristics, a vast majority of survey participants agree with the notion that "today's students are more media savvy than previous generations" (86%). Yet, almost as many teachers *disagree* with the statement that "today's students are more literate than previous generations" (80%).

Older, more experienced teachers are slightly more likely than their younger counterparts to "strongly agree" with the idea that today's students are more media savvy than prior generations. Among teachers ages 55 and older, 61% "strongly agree" with this idea, compared with 50% of younger teachers. Similarly, while 56% of those who have been teaching for 16 years or longer "strongly agree" that today's students are more media savvy than prior generations, the same is true of 50% of those who have not been teaching as long.

On the question of whether today's students are more literate than previous generations, teachers teaching in large metro areas or cities are particularly likely to "strongly disagree" with this statement; more than one in five (23%) "strongly disagree" that today's students are more literate compared with 16% of teachers in rural areas. Teachers of the lowest income students, those living in poverty, also strongly dispute this statement. One-third of this group (33%) "strongly disagree" that today's students are more literate than students of the past, while another 48% "somewhat disagree."

The question of overall literacy among students is one that arose often in focus group discussions. Not only did some focus group participants feel that today's students are no more literate than prior generations, they also feel their students may be losing ground in this area. Typical of these concerns is the following excerpt from a focus group with teachers at a College Board school, in which several teachers suggested that diminishing writing skills may be due in part to a diminishing desire to read in general, and a diminishing ability to read difficult texts. While focus group participants disagreed as to whether the underlying issue is a lack of skill or a lack of interest or focus, there was general agreement in this group that today's students are reading less:

R: They [students] don't read. There are readers and then there's everybody else, and the readers are like few and far between. They don't read even though we push them to read.

R: The ability to focus on one task which is a lot of what we're talking about here, to read a book from cover to cover and be able to do that and that alone is becoming enormously difficult. We're reading Brave New World in our ELA class now for tenth grade ELA which is a staple book that every high school student has read for many, many years now. The book itself is about 170 or 175 pages. It's not a long book. It's certainly a book that's rich in ideas and rich in language but it's not a long book. I would say in terms of the section I teach, which is the [removed] section, I want to say of that 170 pages the average student has read between 40 and 45 so far and the book is supposed to have been completed last week. Now we read Romeo and Juliet before that. Again, the majority of the class did not complete reading the play…Now I certainly can't speak for any other teacher here in terms of the percentage or the amount of text that they're completing or not completing, but it does concern me. Again, I'm trying to find out why - why is this happening? And the answers I'm getting are pretty stock. I find that it's boring, it's not interesting.

M: But do you think they're not capable of doing it or do you think they don't see value?

R: No, no, I think the latter. I certainly think except for a very, very small percentage who might have more severe learning disabilities, a very, very small percentage, every student at this school is more than capable of reading.

M: So it's not that the technology actually is limiting their ability to read long texts deeply. It's that it's diminishing the value of doing it?

R: I believe that is a component. I'd like to see more research done with that. I'd also like to see surveys conducted and get more quantitative data on that.

R: I respectfully disagree…but I totally agree with [other teacher] that the internet has done a number and has weakened students' ability to read for depth, to read for long periods of time and the idea of reading for enjoyment. I didn't go to school that long ago but I remember that everybody liked to read something, whether it was Sports Illustrated or it was what you call it, science fiction stuff. Everybody liked to read something and we see a lot of students today who aren't interested in reading anything, and I think that technology…that they become much more functional readers. It does connect to what [other teacher] was saying in that they're reading stuff to get information and it goes to the speed piece, too. 'I'm reading it to get the information to do what I need to do and that's it.' Why would I sit down and read a 180-page book? What am I going to get there? What's in it for me? I've got to go. I've got things to do.

R: I don't think a lot of them are reading at all. I think that any kind of reading would be wonderful. Reading a comic book would be wonderful. Reading a graphic novel would be wonderful. Reading an online article would be wonderful. They're not reading anything. They're looking at pictures, they're playing video games, and they're on Facebook reading posts. I'm not talking about reading posts on Facebook. Reading something that takes some kind of stamina, it doesn't matter even what the content is.

R: *I think many of the kids are reading but they are reading shorter things, one to four pages. Newspapers, I know a lot of our kids read newspapers which fits with [the focus of] the school. A lot of them read magazines. I've seen that some of the younger grades would get the scholastic magazines. They'll read those but it's always the same problem, you're reading anywhere from one to six pages and they just – it's a habit like anything else. You get into this mindset where you've got a short, maybe just one to six pages and pretty much done and I think they've got a great deal of difficulty segueing over to books which require more stamina and picking it and reading 10, 15, 20, 30, 40 pages, or even reading from beginning to end.*

Yet, in the same discussion, teachers spoke about the promise of digital tools to address what others see as an inability or unwillingness of their students to take on long and challenging texts. As one teacher explained:

> *R: The other thing that -- I want to end on a positive note -- is that we did read Of Mice and Men in the class and we did get I would say like 98% of the people were reading it, and it could be framed as boring but we didn't. We framed it in an interesting way and they liked it. Some kids did download it on their phones and some kids did have Nooks and Kindles and they brought them in and that was their way of doing it and they found ways to highlight and everything, so that did help some of the kids who couldn't get access to a printed copy. So I think that was a positive.*
>
> *R: But that said…the not reading book-length material goes back to [them being] used to short, not only well-edited, sometimes poorly written, but certainly short and not richly written material that they read on the internet. But that's where their primary source of information now is either going to be internet, magazines or newspapers. They're not doing books so I think one of the things I'd like to see in the schools is things like Nooks getting cheap enough [so] we can buy classrooms some Nooks or have enough that we can check them out or have a room where they can check out a Nook or read a book and have a place to read it. They might do that if the technology is there that makes the book accessible. They have a place where they cannot go to lunch where it's crazy, [but] come up and have a quiet room. But that would require probably buying anywhere from 50 to 100 units. I mean it would be a great idea.*

In an online focus group with NWP Summer Institute teachers, participants were asked the value of students being able to read challenging (often long) texts critically in today's digital world. Across the board, these teachers continue to see tremendous value in this skill, and view it as essential for students to function in an information-based world. However, some teachers in this group also questioned whether this is a fading skill among "digital natives."

Reading critically is about thinking and learning. Yes, I do believe that being challenged with reading is critical for the purpose of learning and thinking. No matter what students do in the future this skill is essential. Everyone will have to read through tough texts and explore various audiences. I want my students to be able to tackle texts in a smart manner. Critical reading applies to reading our world, understanding lease terms for a car or apartment, or analyzing situations at a job. I don't want my students to be passive or miss opportunities for being part of a discussion because a text is something they cannot approach. I think students need experiences being challenged, so that they will take the challenge later on too and challenge their continual thinking and learning and engaging in various conversations. – National Writing Project teacher

Whether they are college bound or not, we need students to be provided the opportunities to develop the skills to read and critically think about anything they read - be it a lengthy scholarly article, a blog post, or be it the constitution of the United States. By educating our youth to read and critically examine what they read we are helping to create an educated and informed society. I want to know that my students are able to go out into the "world" and make informed decisions about such things as the rules that govern our society, the politicians that are elected who shape the future of our nation, to the fine print on a credit card policy that can affect their future financial standing. – National Writing Project teacher

The value of teaching students to engage with long and challenging texts is that it's a worthwhile journey. There's something about staying with a problem until you get it (or work through it or wrestle with it or whatever) that is satisfying in and of itself. I'd like to think I'm teaching them to value the act of learning for its own sake. I know a lot of us choose an inquiry approach to teaching writing, and for me a student's inquiry starts to get interesting once you get beyond the givens and the knowns. That's the kind of learning I want them to value. I hear a lot of education people talk about the future and that we're preparing students to solve problems that we don't know the answer to. How else do you get there unless you critically
examine challenging ideas? I suppose the question is, can't you do that without reading long and challenging texts, but I prefer to do things like blast through texts like The Tempest in one or two classes and then asking the students, "Now what just happened?" I could spoon-feed it to them over the course of a month, but the ideas they generate on their own when they have to deal with that long and challenging text is worth it. – *National Writing Project teacher*

The main purpose and value of critically reading long and challenging texts is that there are a whole lot of ideas and concepts that simply cannot be reduced to short and simple texts without seriously compromising their meaning or value. It absolutely remains a critical skill for students today, if for no other reason than the problems that the world faces are increasingly complex and challenging. This truth informs writing, be it fiction or non-fiction. Moreover, with the breakdown of traditional forms of publishing and, in some cases, editorial review makes critical reading more important than ever. All readers must now be readers, researchers, and editors perforce. I often say to students that if you do not learn how to read challenging texts critically, it is very likely that someone, somewhere will simply take advantage of them or dupe them. Worse still, they might not even now it. – *National Writing Project teacher*

When it comes to students "reading deeply" I strongly believe students struggle with the concept of thinking critically. Students have information thrown at them in fast, small bits. To get a student to sit down with an authentic article and have a conversation with it, is very challenging. Students don't ask questions of the reading and wonder if it is valid. They just take it most times at face value. Most responses are simply "yes, I like it", or "No, I think the article was dumb". – *National Writing Project teacher*

Distraction and time management are hot button issues for teachers

The topic which generated perhaps the most intense discussion was that of "digital distractions" and their impact on today's teens. Overwhelming majorities of survey participants agreed with the assertion that "today's digital technologies are creating an easily distracted generation with short attention spans" (87%) and that "today's students are too 'plugged in' and need more time away from their digital technologies" (86%).

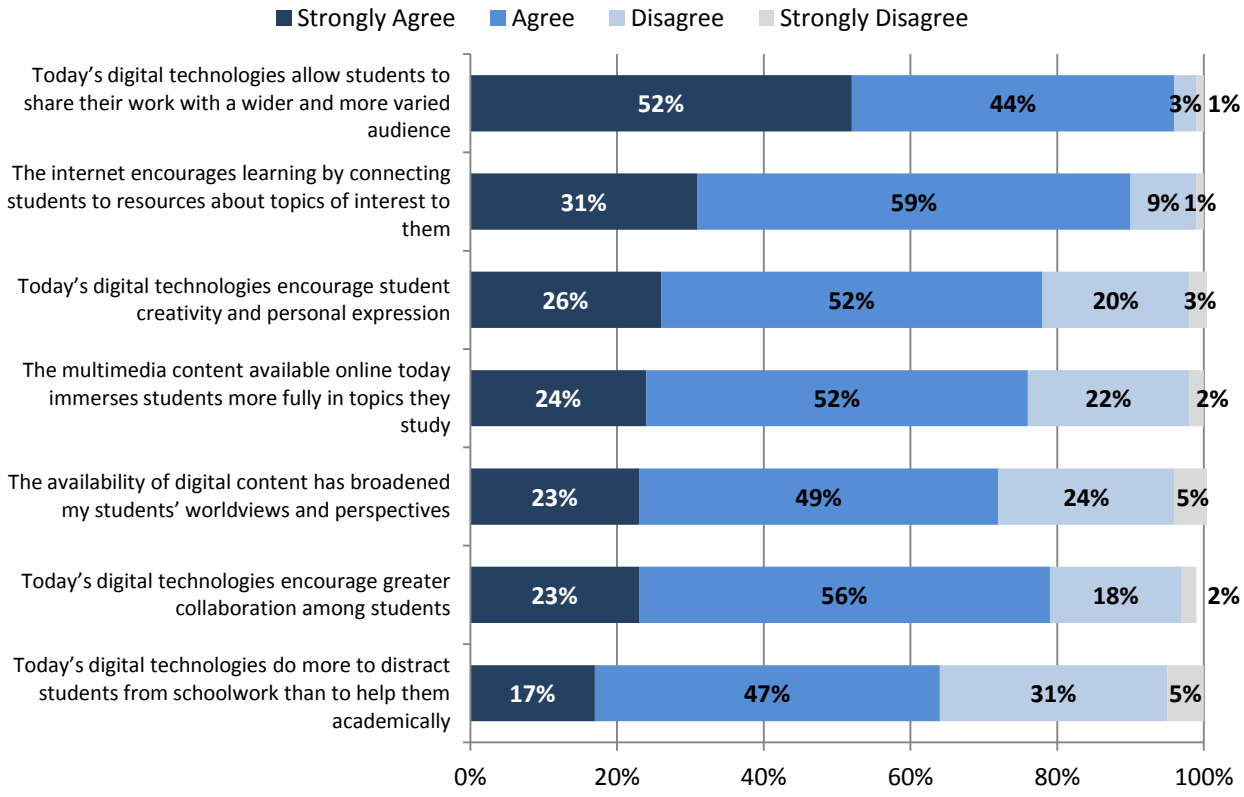
The former statement suggesting that digital technologies create an easily distracted generation elicited consistent responses across all subgroups of teachers, with no notable differences across teachers' age, grade level taught, or years in the classroom. The latter statement suggesting students are "too plugged in" resonated slightly more with older teachers in the sample and among high school teachers. Among teachers ages 55 and older, 41% "strongly agree" with this statement, compared with 37% of teachers ages 35-54 and 32% of teachers ages 22-34. Interestingly, years teaching does not correlate with responses to this item. And while 32% of 6th-8th grade teachers "strongly agree" today's students are "too plugged in," the same is true of 39% of 9th-10th grade teachers and 37% of 11th-12th grade teachers. While these differences are notable, they are fairly small.

Moreover, in contrast to the many positive aspects of learning in a digital age teachers point to, nearly two-thirds of the AP and NWP teachers surveyed see digital technologies as "doing more to distract students than to help them academically." Fully 64% of survey respondents agree to some extent with this notion, including 17% who "strongly agree," indicating that while these teachers generally embrace the power of the internet and other digital tools to encourage and foster greater learning, many also worry that today's digital environment results in more distracted students. High school teachers express more concern than middle school teachers when it comes to digital distractions. One in five 11th-12th grade teachers (19%) "strongly agree" that today's digital tools do more to distract their students than to help them in the classroom, as do 17% of 9th-10th grade teachers. Among middle school teachers, 12% "strongly agree" this is the case.

Asked about their students' ability to multi-task in an age of constant information and distraction, teachers are more divided, with 46% agreeing that today's students are "very skilled" in this area and 53% disagreeing. Surprisingly, teachers of middle school students are more likely to say this is true than are those teaching high school students. Among 6th-8th grade teachers, 54% agree to some degree with this statement, including 13% who "strongly agree." Slightly fewer 11th-12th grade teachers (49%) agree at least somewhat that today's students are "very skilled" multi-taskers. Even fewer 9th-10th grade teachers (45%) agree at least somewhat that today's students are skilled multi-taskers.

Teachers with more years in the classroom are actually more likely to agree with this statement than are those who have been in the classroom 15 years or fewer. Half of more experienced teachers (50%) agree at least somewhat that their students are skilled multi-taskers; that figure drops to 45% among newer teachers. This is a small difference, but may indicate that more experienced teachers see today's generation comparing favorably to prior generations on this skill, particularly given the amount of information and constant communication today's students are exposed to.

Teachers' views of the impacts of today's digital ecology on student learning



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

In focus groups, participants expressed concern about the following elements of "digital culture" and their impact on students' ability to focus and their time management:

- Students' "overexposure" to technology—and the multi-tasking that often accompanies the use of these technologies—contributes to lack of focus and diminished ability to retain knowledge
- Students do not set aside enough time for crucial tasks, and often use the various digital tools at their disposal to "waste time" and procrastinate

- Some students' "addiction" to online gaming and video games consumes their time and attention
- Students are so often "plugged in" that they are missing out on the world around them
- "Overexposure" and "overuse" of digital technologies is not actually making students more technologically literate or more efficient

In online focus groups with AP teachers, participants were specifically asked if they were "concerned that students are overexposed to technology." Nearly all participants answered affirmatively that they see their students as "overexposed," and expressed concern about the impact digital technologies might be having on their students both in terms of their performance in school as well as their wellbeing outside of school. Several participants worried that social media, cell phones, and other tech gadgets are being "abused" by students, and that students are "overstimulated" by doing too many things at once.

Moreover, many teachers worry that these tools are adversely impacting students' time management skills, fostering a (sometimes false) sense that all tasks can be completed quickly and at the last minute because so much information is so easily available. Several teachers suggested that it is critical for students to learn time management skills in their middle and high school years, or else it may harm their future success. They see time management skills as becoming increasingly important in a fast-paced digital world; at the same time, they see the skill potentially declining in their students.

Yet, almost as many teachers argued that today's students are not more easily distracted than prior generations, citing examples of students engaging with assignments over long periods of time. The difference, some teachers suggest, is that today's students are easily bored by information that is presented in "traditional" ways and that teachers need to adjust their methods to engage students using the digital tools and formats that hold their attention. Some argue that today's students are able to handle more information at one time because of the digital environment in which they have grown up, and that rather than being described as "easily distracted," they should be viewed as being highly skilled at dividing their attention across several things at one time.

They just surf the Internet and mess around with Facebook and every other thing, they'll do it until 11:00 or 12:00 or 1:00, and then they'll think they can do their project in one hour. I think that's the biggest problem; while the Internet can be a strength, it's also a huge problem, even in the classroom, unless you got it set up to monitor every screen… they're going to be looking at pictures of their latest film star, music star or anything else. They will do anything to not do work; and it's a real problem at home. — Teacher at College Board School

Tabbed browsing has made things so much worse…It makes things so much worse and so much harder because you don't even know when you're in your g-mail. People are messaging you and let's say you're trying to do whatever and then it's like, ding! You're like, "Oh, what is it?" Then you've got to chat. Then you're like, okay, I've taken care of that, I'm going back to what I need to do and then it's like, ding!...I can't even imagine for kids how many tabs they have open. — Teacher at College Board School

[The internet] does make research so much easier and it's easy to get things done if you put in the time and you focus. So even though students kind of wait until the last minute at 11:00, they probably can get a lot of assignments done in a short period of time if they focused. But because of Facebook, because of tab browsing, the reality is they're not focusing. They're so used to multi-tasking in every other part of their life that when it does come down to that one assignment the only way they're going to get it done and do it well is to focus, they can't. They can't turn other things off because they're so used to having everything on all the time. — Teacher at College Board School

Since they don't have to schedule time to do all these things and since they feel that they can do in five hours what would've taken me when I was in high school perhaps a good month…they can literally procrastinate. I think our curriculum - at least as I see it now and even with the common core standards - in no way addresses these time management skills, which are so critical. How then do we teach time management with this technology that will forever be used, it's forever going to be improved upon, it is only going to become faster and it's only going to allow them to multitask at a quicker pace, expect – and the expectations are so much greater then? If we can't do that, then we're not preparing them for college work, and we're certainly not preparing them for the workforce. — Teacher at College Board School

Interestingly, for the last few years I have been having my ninth grade students read Nicholas Carr's article "Is Google Making Us Stupid?" from The Atlantic, which addresses this very issue. I have them read the article and write a response. By a slim majority, they themselves believe that digital technologies might in fact be undermining their ability to focus and shorten their attention spans. – National Writing Project teacher

I'm not sure if it's apathy, but I do believe that the Internet, as it is used now, allows students to delay time management. If I had to point to one issue which affects the entire human race that certainly affects adolescence, it's time management skills, and this is the age from, say, thirteen to eighteen or nineteen, when these skills become more and more of a requirement. It's no longer optional that you understand how to manage your time; it's a requirement because it is what's expected of them as they move into adulthood and as they move into their professional and personal lives. The Internet has completely changed, irrevocably changed how time management skills are going to be taught, how they're going to be used... – National Writing Project teacher

There is an essay for my tenth grade English Language Arts class that is due next Friday…The essay has been up there for a good six weeks now, yet I'm hearing feedback from the students that I'm working with that "Well, the information is there for me; therefore, I can just do this a couple of days beforehand. I'll have plenty of time to get it done." And I hear this with many students in many classes – since it's so easy to access the website, since they don't have to put away time, schedule time to go to a library, since they don't have to schedule time to use a typewriter…I don't want to make a blanket statement and say that's true for every student, because it's not. We do have students here who do an excellent job of managing their time and using the technology effectively and efficiently, but I would say that is overall the biggest problem I see with students these days. – National Writing Project teacher

I have watched my own children very engaged in authentic conversations for hours on social media. So I guess that I would have to say that it would just depend on the students. I know many of my students would not be distracted, because they are very task-oriented; however, I have several students who would be totally distracted by everything that is going on, Facebook for example. These are the same students that struggle to stay on-task everyday in most environments. Students need to learn to focus, because the world we live in is full of distractions. – National Writing Project teacher

When students are using technology, the hour zooms by and they are completely engaged. I find this true, for example, when they create digital stories. I also agree with [other teacher's] point about online distractions. When doing research online for a report, it is so tempting for students to open another screen and check out Derrick Rose's new lightweight basketball shoes. In fact, I think I might check those out right now...my daughter has been asking for a pair....and then I'll check my school e-mail...and then my g-mail account...be back soon! – National Writing Project teacher (during online focus group)

I had my students read "Is Google Making Us Stupid?" at the start of the school year for the past couple of years. Across the board, they say that Carr is selling their generation short. They feel that they can do both deep reading and the shorter, connective bursts of reading online – the two aren't mutually exclusive. To use Carr's analogy, they like to jet ski and scuba dive. Like Joel's students, mine can be absorbed in digital composition or the free reading of actual books for up to (and over) an hour. Actually the length of their attention spans in my classroom often correlates to those times when the conditions for sustained learning aren't present (e.g. the day before Christmas vacation, the days when teacher doesn't have his act together, emergency preparedness drill days). So I disagree with this and see it as an attention-span awareness issue. – National Writing Project teacher

I don't know if it's a question of attention spans. I believe digital technologies have fostered a sense of instant gratification. If they wonder about something, they Google it. If they want to see a trailer of a movie that they just read about, they can to a website or app. I don't think it undermines student abilities to focus, I think technologies can hasten the information students seek. It's up to parents and teachers to teach students how to judge which information, which interests and inquiries, are worth seeking and when. Follow through and accountability must be explored. These are important discussions to have. Essential. – National Writing Project teacher

Considering my own students over the years, I don't agree that digital technologies diminish students' attention spans. I know students who will read for hours and spend extra time outside of school writing and working on projects because they are engaged and enthusiastic in learning more about topics that interest them. If anything, technology tools provide my students opportunities to participate in learning activities and extend their learning beyond the school day if they want. Students write entries and comment on each other's Edmodo posts in the evenings and weekends without any requirement from me to do so. – National Writing Project teacher

Finally, some teachers in this study feel that the question of "digital distraction" may be a red herring, diverting attention away from other issues that need to be addressed in the classroom and society at large. Several suggest that the notion of student "distraction" should be reframed not as a problem with today's students, but as a problem with teachers, parents, and the broader educational system. For these teachers, the "distracted" label is drawing attention away from a lack of technological skill or understanding among some parents, teachers, and administrators, which they see as the main issue to be addressed. Several labeled it an "excuse" adults use to avoid changing their own behavior and teaching methods. Others point out that the issue of "distraction," valid or not, is a moot point; digital technologies will continue to emerge and shape the world in which teens and adults live, and educators must adapt to this environment.

I think this is not only an issue for students and digital natives, but all of us. Before smartphones and the internet, I was not nearly the multi-tasker that I am today. We have all become accustomed to checking email regularly throughout the day, and while we may be hesitant to admit it, most of us are also interacting with Facebook, Twitter, texts, and other social media throughout the day as well. There are so many things that now fight for our attention, but this is the world we live in and I believe our responsibility is to give our students opportunities and guidance in managing their time. Three years ago when my school first introduced laptops and a model that allows for quite a bit of student freedom, and consequently encourages creativity and critical thinking, our students floundered. Access to the internet was overwhelming - so much music to find and download, friends to chat with, status to update. Most struggled to keep up with their work. There were many faculty debates about how to lock things down and take power and control out of the hands of students, but in the end no school-wide mandates were ever enacted. Today these same students have become efficient multi-taskers. Do they still check their Facebook accounts? Yes, of course they do, but even some of the rowdiest, least academically-focused students have learned how to balance. – National Writing Project teacher

I think that point of view described in your question is a convenient excuse for adults who do not want to take the time to learn about burgeoning developments in technology. Kids have been bored by things long before I was born and will continue to be long after I'm gone. When you learn how to use a tool, when you learn how to mentor a tool, then you have learned how to guide an adolescent to get the most out of it. Learning and thinking is never boring. If a kid is bored by technology or has lost focus or attention then he isn't learning and thinking. It is a people (pedagogy) problem and not a tool problem. – National Writing Project teacher

The problem with the argument is that, at the end of the day, it doesn't really matter. Students are using digital technologies and tools outside of class (and often in classes without teachers' permission). These are likely going to be job-related skills as well. Are students distracted and often floundering at multi-tasking. Sure. But I think this speaks to larger challenges with updating classroom pedagogy than with a problem with students. – National Writing Project teacher

I tend to be on the fence about this statement. Students today generally have a shorter attention span, but it is due to how information is delivered to students today. The technologies mentioned above are not to blame for students having a short attention span. – National Writing Project teacher

I wouldn't say that any of these technologies are shortening their attention spans. Look at how long kids will play a video game -- for hours and hours and hours. If anything, right or wrong, I think students have less tolerance for the boring stuff we try to shove down their throats. In some ways they are saying, "Teacher you are boring. I want you to entertain me." Now, obviously, I'm not saying that teachers should turn into some comedian routine just for the sake of entertaining kids, but we must consider all of the other things out there in the world that do grab kids attention. Their attention span is still there, it is just more selective about what it will devote itself to. As teachers we must take this into consideration and plan things for kids that they will be willing to spend their time working on. A few months ago, I had a couple of students who worked on a project for our class using video game components. They spent HOURS and HOURS working on this project and actually had a very in depth understanding of what they created. – National Writing Project teacher

I know when I have kids editing video to make a movie they care about they are fixated to the point where time ceases to exist. The bell will ring and I will hear, "Is that our bell? Geez. This class is too short." That sounds like focus to me. I also know that when my 10th graders read their independent novels in class they are pin drop quiet and immersed in their books. You can almost smell their brains working…I don't think attention spans are shortened on a physiological level -- I think that we must have real conversations and present thoughtful articles to our students about how our digital practices might be impacting or undermining our writing, reading, and thinking. We can't make Words With Friends or Facebook or Google Docs or cell phones go away, but we can have conversations in a valued literacy community (our classrooms) about the positive and negative impact of these tools. The ability to move between different media, different sources of information to piece together your thoughts while being bombarded by fragments... I guess these abilities might look like a short attention span, but maybe these are habits that students have developed to adapt to their media environments. – National Writing Project teacher

Methodology

Data collection was conducted in two phases. In phase one, Pew Internet conducted two online and one in-person focus group with middle and high school teachers, as well as two in-person focus groups with students in grades 9-12. Focus group findings were instrumental in shaping the development of a 30-minute online survey, which was administered in phase two of the research to a national sample of middle and high school Advanced Placement and National Writing Project Summer Institute teachers, drawn from sample files provided by the College Board and the National Writing Project, respectively.

Phase One — Focus Groups

Focus group discussions were designed to elicit from teachers and students their perceptions of the different ways digital technologies such as the internet, search engines, social media, and cell phones are impacting and shaping students' research and writing habits and skills. Teachers were also asked to speak in depth about their experiences teaching research and writing to middle and high school students today, any challenges they encounter, how they incorporate digital technologies into their classrooms and assignments, as well as how these technologies play a role in their professionalization.

In-person focus groups were led by two Pew Internet researchers, and were held on-site at a College Board school in the northeastern United States, immediately following school hours. Each discussion was approximately 1.5 hours in duration, and students and teachers were provided with Barnes & Noble gift cards as a token of appreciation for their participation ($25 for students, $50 for teachers). Focus group discussions were recorded and transcribed.

Two online focus groups were also held with teachers. The first utilized an existing online research community of 150 Advanced Placement teachers. A series of discussion questions or "exercises" designed by Pew Internet were administered to this group by panel administrators using an online, asynchronous platform. Panel administrators then provided Pew Internet with transcripts of responses to the exercises.

The second online teacher focus group was administered by Pew Internet staff using an online focus group platform. Participants in this group consisted of 30 National Writing Project teachers recruited by NWP site administrators. The asynchronous 3-day focus group was moderated by Pew Internet staff, and all participants were able to see and respond to one another's comments as well as questions and comments from the moderators. Transcripts of the focus group were downloaded following completion of the discussion.

All focus group sessions were analyzed to identify key themes, and discussion guides were revised and adjusted between groups to better probe emergent themes. All focus group discussion guides are available at the end of this section.

Phase One: Focus Groups

	Location	Date(s)	Participants
Teacher focus groups			
Group #1	Online, asynchronous discussion	November 8-17, 2011	150 AP teachers participating in the AP's Insight Community Panel
Group #2	Conducted at a College Board school in the Northeast United States	December 13, 2011	8 Grade 9-12 Teachers covering a variety of class levels and subject matter expertise
Group #3	Online, asynchronous discussion	February 26-28, 2012	30 NWP teachers recruited by NWP site administrators
Student focus groups			
Group #1	Conducted at a College Board school in the Northeast United States	December 13, 2011	9 students in grades 9-10
Group #2		December 14, 2011	10 students in grades 11-12

Phase Two – Online Survey

Following completion of focus group discussions, Pew Internet designed and fielded a 30-minute online survey with a national sample of middle and high school teachers. The sample is not a probability sample of all teachers because it was not practical to assemble a sampling frame of this population. Instead, two large lists of teachers were assembled: one included 42,879 AP teachers who had agreed to allow the College Board to contact them (about one-third of all AP teachers), while the other was a list of 5,869 teachers who participated in the National Writing Project's Summer Institute during 2007-2011. A stratified random sample of 16,721 AP teachers was drawn from the AP teacher list, based on subject taught, state, and grade level, while all members of the NWP list were included in the sample.

Email invitations containing a link to the survey and unique username and password were sent to members of the sample; teachers could not opt-in to the sample. The response rate was 12% for the AP teachers and 14% for the NWP teachers. Given the nature of the sampling frames used for the study, no margin of error has been computed.

The online survey was conducted from March 7–April 23, 2012, and was completed at least in part by 2,462 teachers (2,067 teachers completed the entire survey; partial completes were kept, and all percentages reported are based on those answering each question).

Online Survey Sample Breakout	
Invited to participate	22,590
Known undelivered emails	2,501
Delivered email invitations (at most)	20,089
Unique visitors to the survey	2,564
Responders	2,462
Completed surveys	2,067

The teachers who participated in the survey

The survey results presented here are *not* based on a representative sample of U.S. middle and high school teachers, yet every effort was made to administer the survey to as broad a sample of educators as possible from the samples available. Overall, the 2,462 Advanced Placement and NWP Summer Institute teachers who participated in the survey comprise a fairly wide range of subject areas, experience levels, geographic regions, school type and socioeconomic level, and community type (full sample characteristics below).

The final sample includes teachers from all 50 states, Puerto Rico and the U.S. Virgin Islands. All teachers who participated in the survey teach in physical schools/classrooms, as opposed to teaching online or virtual classes. English/Language Arts teachers make up a significant portion of the sample (36%), reflecting the intentional design of the sample. Only 9% of the final sample is middle school teachers, with the other 91% reporting that they currently teach grades 9-12. While half of the teachers participating in the survey report teaching in a small city or suburb, there is fairly wide distribution across school size and students' socioeconomic status. There is also a wide distribution in terms of teachers' ages and experience levels.

Who took the survey? *% of survey respondents who fall into each category*

Teacher's age	
20-34	21
35-44	29
45-54	29
55+	23
Teacher's gender	
Male	29
Female	71
Years teaching	
5 or fewer	8
6 to 10	23
11 to 15	23
16 to 20	18
21 or more	28

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

Who took the survey? *% of survey respondents who fall into each category*

Subjects taught	
Arts/Music	5%
Foreign language	7
History/Social Studies	17
English/Language Arts/Reading/Composition	36
Math	12
Science	13
Other	9
Performance levels taught	
AP/IB courses	34
ESL	2
Honors/Gifted/Accelerated	22
Mixed level courses	30
Remedial	6
Special education	2
Other	3
Grade levels taught	
6-8	9
9-10	36
11-12	56
Type of community in which you teach	
Large metropolitan area or big city	23
Small city or suburb	50
Small town	13
Rural area	14
SES of students	
Mostly upper or upper middle class	17
Mostly middle income	32
Mostly lower middle income	24
Mostly low income	20
Mostly living below the poverty line	6
School size	
Fewer than 300 students	7
300 to under 1000	31
1000 to under 2000	40
2000 or more	23

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

Interpreting the results

There are several important ways the teachers who participated in the survey are unique, which should be considered when interpreting the results reported here. First, 95% of the teachers who took the survey teach in public schools, thus the findings reported here reflect that environment almost exclusively. Moreover, and perhaps more importantly, the majority of teachers in this sample (56%) teach AP, honors and accelerated courses, thus the population of middle and high school students they work with skew heavily toward the highest achievers. These accelerated classes may have resources and support at their disposal—particularly in terms of specialized training and access to digital tools—that are not available in all classrooms.

In addition, it is critical to keep in mind that almost a third of the sample (NWP teachers) has received extensive training in how to effectively teach writing in today's digital environment. The National Writing Project's mission is to provide professional development, resources and support to teachers to improve the teaching of writing in today's schools. The NWP teachers included here are what the organization terms "teacher-consultants" who have attended the Summer Institute and provide local leadership to other teachers. Research has shown significant gains in the writing performance of students who are taught by these teachers.[11]

Thus, the population of teachers participating in this research might best be considered "leading edge teachers" who are actively involved with the College Board and/or the National Writing Project and are therefore beneficiaries of resources and training not common to all teachers. It is likely that teachers in this study are developing some of the more innovative pedagogical approaches to teaching research and writing in today's digital environment, and are incorporating classroom technology in ways that are not typical of the entire population of middle and high school teachers in the U.S.

[11] More specific information on this population of teachers, the training they receive, and the outcomes of their students are available at the National Writing Project website at www.nwp.org.

Survey questions

INTRO PAGE

Welcome to a national survey of teachers being conducted by Pew Internet, the College Board, and the National Writing Project! The goal of the study is to understand how digital technologies are impacting the research and writing practices of today's middle and high school students, as well as different ways educators are using digital tools in their teaching.

Below is some important information about taking the survey...

- This survey is completely confidential. Results are reported in the aggregate, and responses are never attributed to any individual.
- Most questions ask you to select the single response that best reflects your answer. Other questions are labeled
- SELECT ALL THAT APPLY, and for these you can select more than one response.
- Grid questions list multiple items down the left side of the screen and response choices across the top. Please provide an answer for each item in the grid.
- Some questions are followed by textboxes in which you can type your answer.
- Please move through the survey using the "back" and "next" buttons just below the question box. Do not use your browser's back button.
- Your responses are saved as you move through the survey, but they are not final until you click the "submit" button at the end of the survey. Once you submit your survey, you will not be able to log back in.
- If you need to, you can suspend your session by clicking the "logout" link below the question box. Your answers will be saved, and you can log back in later to finish the survey.

Q1 Which grade level(s) do you currently teach? **(check all that apply)**
***response required**
PLEASE NOTE THIS SURVEY IS ONLY INTENDED FOR THOSE CURRENTLY TEACHING IN GRADES 6-12.

	CURRENT	
%	2	Sixth
	3	Seventh
	4	Eighth
	15	Ninth
	21	Tenth
	27	Eleventh
	29	Twelfth
	1	None of these

***NOTE: Percentages may add to more than 100% due to multiple response**

If Q1="None of these," send to last page of survey

Q2 Which of the following subjects do you currently teach? **(check all that apply)**
***response required**

	CURRENT	
%	5	Arts and/or Music
	7	Foreign Language(s)
	17	History and/or Social Studies
	36	English/Language Arts/Reading/Composition
	12	Math
	13	Science
	*	Generalist/All elementary subjects
	9	Other (SPECIFY)

***NOTE: Percentages may add to more than 100% due to multiple response**

Q3 Are you currently teaching… **(check all that apply)**
***response required**

	CURRENT	
%	34	AP/IB courses
	2	ESL courses
	22	Honors, gifted or accelerated courses
	30	Mixed level courses
	6	Remedial courses
	2	Special education courses
	3	Other (SPECIFY)

***NOTE: Percentages may add to more than 100% due to multiple response**

SECTION II – TECH USE AND ATTITUDES

The questions in this section are about <u>your own</u> use of digital technologies, including the internet and email, online activities such as social media use or social networking, tech devices such as tablet computers, smartphones and any apps you might download or use on mobile gadgets.

WEBA Now thinking about how you use the internet in general….Do you ever use the internet to do any of the following things?

	YES	NO
a. Use an online search engine to help you find information on the Web	100	*

Q10 Which search engine do you use MOST OFTEN? **(SELECT ONE)**

Based on search engine users

	CURRENT	
%	90	Google
	4	Yahoo search
	3	Bing
	*	Ask
	*	AOL
	*	MyWebSearch
	*	Dogpile
	*	WebCrawler
	1	Other (PLEASE SPECIFY)

Q11 In general, how much of the information you find using search engines do you think is accurate or trustworthy? Would you say…

Based on search engine users

	CURRENT	
%	5	All or almost all
	55	Most
	40	Some
	1	Very little
	0	None at all

Q12 How CONFIDENT do you feel about your own searching abilities when using a search engine to find information online?

Based on search engine users

	CURRENT	
%	73	Very confident
	26	Somewhat confident
	1	Not too confident
	*	Not at all confident

SECTION III –TECHNOLOGY IN TEACHING

This section includes questions about different ways you and your students might use digital technologies (such as the internet and email, social media or social networking sites, tech devices such as tablet computers, smartphones and apps, etc.) as part of the learning process.

Q13 Please tell us if you or your students ever use any of the following digital tools, either in the classroom or in completing school assignments. When thinking about your answer, please include digital tools supplied by you or the school, as well as any items students might own themselves.

		YES, I DO THIS	YES, MY STUDENTS DO THIS	YES, BOTH I AND MY STUDENTS DO THIS	NO
a.	A computer lab or computer workstation (a space devoted to student computer use) available at your school	7	15	73	4
b.	A computer/laptop cart available at your school	9	19	43	29
c.	A projector that is connected to a laptop or desktop computer or other digital device	42	2	53	3
d.	An interactive whiteboard	16	5	31	48
e.	A digital camera other than a cell phone	21	10	35	33
f.	A digital video recorder other than a cell phone	15	13	27	45
g.	A tablet computer	14	18	11	57
h.	An e-book reader	12	20	13	55
i.	A cell phone and/or smartphone	12	16	44	27

Q15 Do you agree or disagree with each of the following statements about today's middle and high school students?

		STRONGLY AGREE	SOMEWHAT AGREE	SOMEWHAT DISAGREE	STRONGLY DISAGREE
a.	Compared with previous generations, today's students have fundamentally different cognitive skills because of the digital technologies they have grown up with	40	48	9	2
b.	Today's digital technologies are creating an easily "distracted" generation with short attention spans	43	44	11	2
c.	Today's students are really no different than previous generations, they just have different tools through which to express themselves	11	36	40	12
d.	Today's students are more media savvy than previous generations	53	33	12	2
e.	Today's students are more literate than previous generations	2	18	61	19
f.	Today's students are very skilled at multi-tasking	9	38	39	14
g.	Today's students are too "plugged in" to digital technologies and need more time away from them	38	48	12	2

Q16 Please tell us if you ever have your students to do any of the following…

		YES	NO
a.	Submit assignments online	76	24
b.	Access or download assignments from an online site	79	21
c.	Edit or revise their own work using a collaborative web-based tool such as GoogleDocs	36	64
d.	Edit others' work or give others feedback using a collaborative web-based tool such as GoogleDocs	29	71
e.	Develop, share or post their work on a website, wiki or blog	40	60
f.	Participate in online discussions	39	61
g.	Do research or search for information online	95	5
h.	Post their own work online where people other than their classmates or teachers can see it	22	78

Q17 Do your students ever use their cell phones for the following school-related activities, or not?

		YES	NO	STUDENTS CANNOT HAVE CELL PHONES IN CLASS[12]
a.	Looking up information IN CLASS	42	9	49
b.	Texting IN CLASS with you or other students as part of an assignment or lesson	11	38	51
c.	Taking pictures or recording video for a school assignment	38	17	45
d.	Using an online cell phone platform such as Celly	2	49	49
e.	Uploading school-related content to the internet	18	34	48

Q18 Do you agree or disagree with each of the following statements about the overall impact of today's digital technologies on middle and high school students?

		STRONGLY AGREE	SOMEWHAT AGREE	SOMEWHAT DISAGREE	STRONGLY DISAGREE
a.	Today's digital technologies encourage greater collaboration among students	23	56	18	2
b.	Today's digital technologies allow students to share their work with a wider and more varied audience	52	44	3	*
c.	Today's digital technologies encourage student creativity and personal expression	26	53	20	3
d.	Today's digital technologies do more to distract students from schoolwork than to help them academically	17	47	31	5
e.	The internet encourages learning by connecting students to resources about topics of interest to them	31	59	9	1
f.	The multimedia content available online today immerses students more fully in topics they study	24	52	22	2
g.	The availability of digital content has broadened my students' worldviews and perspectives	23	49	24	5

[12] Note that percentages vary for this response category across items because not all teachers responded to each item in this question. Therefore, the base on which the percentages are based changed from item to item, as did the number of teachers selecting this response option.

Q19 How important do you feel each of the following skills is for your students to be successful in life?

		ESSENTIAL	IMPORTANT BUT NOT ESSENTIAL	ONLY SOMEWHAT IMPORTANT	NOT IMPORTANT
a.	Writing effectively	91	8	*	0
b.	Finding information quickly	56	40	4	*
c.	Judging the quality of information	91	9	*	0
d.	Communicating their ideas in creative, engaging or interesting ways	59	38	3	*
e.	Presenting themselves effectively in online social networking sites	31	41	23	5
f.	Working with audio, video or graphic content	23	54	22	2
g.	Behaving responsibly online	85	14	2	0
h.	Understanding privacy issues surrounding digital and online content	78	20	2	*

SECTION IV – THE IMPACT OF DIGITAL TECHNOLOGY ON RESEARCH

The questions in this section ask about the impact of today's digital technologies (such as the internet and email, social media and social networking sites, tech devices such as tablet computers, smartphones and apps, etc.) on how students are taught and learn to engage in research.

Q20 First, overall, would you say the impact of the internet on students' research habits has been mostly positive or mostly negative?

	CURRENT	
%	77	Mostly positive
	23	Mostly negative

Q21 Overall, what would you say is the most POSITIVE aspect of students today being able to conduct research online?

TEXT BOX

Q22 Overall, what would you say is the most NEGATIVE aspect of students today being able to conduct research online?

TEXT BOX

Q23 Thinking about the research habits of your students…

How likely, if at all, are your students to use each of the following sources in a typical research assignment?

		VERY LIKELY	SOMEWHATL IKELY	NOT TOO LIKELY	NOT AT ALL LIKELY
a.	Google or other general online search engines	94	5	1	*
b.	Online databases such as EBSCO, JSTOR or Grolier	17	29	36	18
c.	A research librarian at your school or local public library	16	37	34	14
d.	Their peers	42	46	10	2
e.	Textbooks (either print or electronic)	18	48	28	5
f.	Printed books (other than textbooks)	12	38	41	9
g.	Wikipedia or other online encyclopedias	75	19	4	2
h.	YouTube or other social media sites	52	33	13	3
i.	News sites of major news organizations such as the New York Times or CNN	25	49	23	3
j.	SparkNotes, CliffNotes, or other study guides	41	34	19	6
k.	Student-oriented search engines such as Sweet Search	10	34	39	17

Q24 Overall, how would you rate your students on each of the following?

		EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
a.	Understanding how online search results are generated	5	18	29	26	21
b.	Ability to use appropriate and effective search terms and queries	6	20	36	29	9
c.	Ability to assess the quality and accuracy of information they find online	3	11	26	37	24
d.	Ability to recognize bias in online content	1	7	20	38	33
e.	Patience and determination in looking for information that is hard to find	1	6	15	35	43
f.	Ability to use multiple sources to effectively support an argument	3	12	26	39	20

Q25 Do you ever….

		YES	NO
a.	Give your students research assignments in which they are NOT permitted to use online search engines	29	71
b.	Develop research questions or assignments that require students to use a variety of sources, both online and offline	83	17
c.	Spend class time discussing with students how to assess the reliability of information they find online	80	20
d.	Spend class time discussing with students how search engines work and how search results are generated/ranked	35	65
e.	Spend class time helping students improve their search terms and queries	57	43
f.	Spend class time discussing with students how to generally conduct research using the internet	71	29
g.	Direct students to specific online resources which you feel are most appropriate for their assignments	90	10

Q26 Do you agree or disagree with each of the following statements?

		STRONGLY AGREE	SOMEWHAT AGREE	SOMEWHAT DISAGREE	STRONGLY DISAGREE
a.	The amount of information available online today is overwhelming for most students	35	48	15	2
b.	Search engines have conditioned students to expect to be able to find information quickly and easily	76	23	1	*
c.	The internet enables students to find and use resources that would otherwise not be available to them	76	23	1	*
d.	The internet makes students more self-sufficient researchers who are less reliant on adult help	18	47	28	7
e.	Today's digital technologies discourage students from finding and using a wide range of sources for their research	25	46	23	6
f.	Today's digital technologies make it harder for students to find and use credible sources	13	47	33	7

SECTION V – TEACHING WRITING

The questions in this section ask about the impact of today's digital technologies (such as the internet and email, social media and social networking sites, tech devices such as tablet computers, smartphones and apps, etc.) on how students are taught and learn to write.

Q27 In general, how important do you feel the incorporation of writing assignments into formal learning is today?

	CURRENT	
%	92	Essential
	7	Important, but not essential
	*	Only somewhat important
	*	Not important

Q28 Thinking about the 2011-2012 academic year, please tell us about how often, if at all, you have your students do each of the following.

		EVERYDAY OR ALMOST EVERDAY	AT LEAST ONCE A WEEK	AT LEAST ONCE A MONTH	JUST A FEW TIMES A YEAR	NOT AT ALL
a.	Engage in creative writing such as poetry, plays, fiction or short stories	5	12	18	31	33
b.	Write a short essay, short response, or opinion piece	13	45	25	10	7
c.	Write a research paper	1	1	11	64	23
d.	Create a multimedia or mixed media piece incorporating video/audio/images	1	3	17	56	22
e.	Write out mathematical problems, proofs or explanations of mathematical concepts	13	9	5	5	68
f.	Write in a journal	20	21	12	11	37
g.	Write up a lab	1	10	11	6	72
h.	Write music or lyrics	1	1	4	22	72
i.	Write computer programs	1	1	1	3	95
j.	Design computer games	*	*	1	2	97

SECTION VI – TEACHING PRACTICE AND SCHOOL CONTEXT

The questions in this section ask about the impact of today's digital technologies (such as the internet and email, social media and social networking sites, tech devices such as tablet computers, smartphones and apps, etc.) on the way teachers engage in their profession.

Q39 Is each of the following a MAJOR challenge, MINOR challenge, or NOT a challenge at all for you, personally, in incorporating more digital technologies and digital learning into your classroom pedagogy?

		MAJOR CHALLENGE	MINOR CHALLENGE	NOT A CHALLENGE AT ALL
a.	General resistance by colleagues and administrators	14	38	49
b.	Time constraints	61	33	6
c.	Pressure to teach to assessments	43	38	19
d.	Lack of resources and/or access to digital technologies among your students	40	41	19
e.	Your own lack of comfort, knowledge or training with digital technologies	9	43	48
f.	Lack of technical support (such as repair, troubleshooting, set-up) to use digital technologies consistently	30	47	24

Q47 Do you agree or disagree with each of the following statements?

		STRONGLY AGREE	SOMEWHAT AGREE	SOMEWHAT DISAGREE	STRONGLY DISAGREE
a.	Courses or content that focus on digital literacy must be incorporated into every school's curriculum	47	44	8	1

Q49 Does your school currently have any of the following in place? If so, how much of an impact, if any, does it have on your teaching?

		YES, HAS A MAJOR IMPACT ON MY TEACHING	YES, HAS A MINOR IMPACT ON MY TEACHING	YES, HAS NO REAL IMPACT ON MY TEACHING	NO, SCHOOL DOES NOT CURRENTLY HAVE THIS
a.	Rules governing the use of cell phones by students on school grounds	21	43	34	3
b.	Filters blocking access to certain websites or online content	32	46	19	3
c.	An AUP or acceptable use policy governing how school computers and networks may and may not be used	16	33	49	3

SECTION VIII -- DEMOGRAPHICS

SEX We have just a few last questions for statistical purposes only. First, are you male or female?

	CURRENT	
%	29	Male
	71	Female

AGE What is your age? PLEASE SELECT FROM THE DROP-DOWN MENU BELOW

	CURRENT	
%	*	Younger than 22
	*	22-24
	7	25-29
	13	30-34
	13	35-39
	16	40-44
	14	45-49
	15	50-54
	13	55-59
	8	60-64
	2	65 or older

YRS For how many years have you been teaching? PLEASE SELECT FROM THE DROP-DOWN MENU BELOW

	CURRENT	
%	*	This is my first year
	8	2 to 5
	23	6 to 10
	23	11 to 15
	18	16 to 20
	28	21 or more years

STATE In what state do you currently teach? (DROP-DOWN ALL 50 STATES AND US TERRITORIES)

Q50 Did you participate in a National Writing Project Invitational Summer Institute any time between 2007 and 2011?
***response required**

	CURRENT	
%	28	Yes
	72	No

SITE At what National Writing Project site did you attend the Invitational Summer Institute? If you attended at more than one site, please choose the most recent. (DROP-DOWN LIST OF SITES)

Based on NWP SI teachers

CT Would you describe the community in which you teach as…

	CURRENT	
%	23	A large metropolitan area or big city
	50	A small city or suburb
	13	A small town
	14	A rural area
	*	Distance or online courses

SES Would you describe the students you teach as…

	CURRENT	
%	17	Mostly upper or upper middle income
	32	Mostly middle income
	24	Mostly lower middle income
	20	Mostly low income
	6	Mostly living below the poverty line

TYPE Do you currently teach…

	CURRENT	
%	95	At a public school
	1	At a private school
	1	At a parochial school
	2	At a charter school
	*	Distance or online classes
	1	Other (PLEASE SPECIFY)

SIZE How many students in total are currently enrolled in the school at which you teach?

	CURRENT	
%	1	Fewer than 100
	6	100 to under 300
	10	300 to under 500
	21	500 to under 1000
	22	1000 to under 1500
	18	1500 to under 2000
	23	2000 or more

EDUC What is the LAST grade or class you completed in school?

	CURRENT	
%	*	High school graduate
	10	College graduate (B.A., B.S., or other 4-year degree)
	90	Post-graduate training (toward a Master's or Ph.D., Law or Medical degree)

PAR Are you the parent or guardian of any children under age 18 now living in your household?

	CURRENT	
%	44	Yes
	56	No

HISP Are you, yourself, of Hispanic or Latino origin or descent, such as Mexican, Puerto Rican, Cuban, or some other Latin American background?

	CURRENT	
%	5	Yes
	91	No
	4	Refused

RACE What is your race…

NOTE: If you are Hispanic, please tell us if you consider yourself WHITE Hispanic or BLACK Hispanic

	CURRENT	
%	86	White
	2	Black or African-American
	2	Asian or Pacific Islander
	1	Mixed race
	1	Native American/American Indian
	2	Other (PLEASE SPECIFY)
	5	Refused

INC Last year, that is 2011, what was your total household income from all sources, before taxes?

	CURRENT	
%	0	Less than $10,000
	*	$10,000 to under $20,000
	1	$20,000 to under $30,000
	4	$30,000 to under $40,000
	7	$40,000 to under $50,000
	24	$50,000 to under $75,000
	23	$75,000 to under $100,000
	24	$100,000 to under $150,000
	9	$150,000 or more
	9	Refused

That completes the survey!
Thank you again for participating in this study being conducted jointly by the Pew Internet & American Life Project, the College Board, and the National Writing Project.

SUBMIT SURVEY BUTTON

[After submission, redirect to Pew Internet homepage]

Focus group discussion guides

Online Focus Group with Advanced Placement Teacher Panel

Project Description:

The Pew Internet & American Life Project, the College Board, and the National Writing Project are partnering on a research study exploring how technology is used in classrooms today, as well as how new technologies impact teachers' professional development and interactions with students and parents. The results will be made available to the public in a report issued next year. Your responses may be quoted anonymously in the report, but your identity will never be shared with anyone other than the researchers conducting the study. We understand that some questions may not apply to all teachers. If you cannot answer a particular question, please feel free to indicate that and move to the next discussion item. We truly appreciate your participation.

Activity #1 (Technology and Research Practice)

Discussion One: Based on your observations, how do today's high school students (both AP and non-AP) define "research" and what it means to conduct effective research? What are the key ways technology (such as the internet, search engines, online resources, wikis, digital devices such as cell phones and tablet computers, etc.) has impacted the research skills of your students, either positively or negatively?

Discussion Two: Given today's technologies, what do you think are the most critical research skills students should learn? At what stage in their educational careers should students begin learning these skills?

Discussion Three: How do you approach teaching these critical research skills [link to Discussion Two] to your high school students? How extensively, if at all, do you incorporate technology (either in the classroom or home assignments) to help students develop the research skills they need? How do you develop these teaching practices?

Discussion Four: What have been the biggest challenges or obstacles you have faced in teaching effective research skills to your high school students? How do you see technology changing and shaping the way research skills are taught? How receptive are students to learning effective research skills?

Activity #2 (Technology and Writing Instruction)

Discussion One: Based on your observations, how do students today define "writing"?

POLL: Which of the following activities do students think of as writing?

Formal writing (essays, papers, etc)
Creative writing
Blogging
Texting
Other (please describe)

POLL: Which of the following activities do you think of as writing?

Formal writing (essays, papers, etc)
Creative writing
Blogging
Texting
Other (please describe)

POLL: Do today's students do enough writing, both inside and outside of the classroom?

Discussion Two: What are the key ways technology (such as social networks, blogs, wikis, other forms of social media, and digital devices such as cell phones and tablet computers) has impacted student writing? Overall, do new technologies help students write better or do they impact student writing in mostly negative ways?

Discussion Three: How do you approach teaching students how to write? How extensively, if at all, do you incorporate technology (either in the classroom or home assignments) to help students learn writing skills? How do you develop these teaching practices?

Discussion Four: What have been the biggest obstacles/challenges you have faced in teaching writing to today's students? How do you see technology changing and shaping the way writing skills are taught? How receptive are students to learning writing skills?

Activity #3 (Technology and Professional Practice)

Discussion One: How has technology (such as the internet, social networks, blogs, digital devices such as cell phones/tablet computers/laptops, etc.) impacted teacher professionalization and training? How has technology shaped the way teachers communicate and/or collaborate with one another?

Discussion Two: How has technology shaped the way teachers manage their classrooms and discipline their students? How has technology shaped the way teachers communicate with students? Does technology strengthen or weaken communication between teachers and students?

Discussion Three: Overall, does technology make it easier or harder for you to carry out your professional roles and responsibilities? What are some examples of how it makes your professional role easier/harder?

Discussion Four: To what extent does your school encourage or discourage the use of new technologies in the classroom? Has your school taken any steps to provide *access* to new technologies to teachers and/or students? Does your school provide any specific *training* or *support* to help teachers use new technologies effectively?

Activity #4 (Personal Perceptions of Technology/Incorporating Technology into Teaching)

Discussion One:

POLL: Do you consider yourself an early adopter of new technologies (such as social media, smartphones, tablet computers, e-readers, apps, etc.)?

Yes
No

POLL: In general, how comfortable are you learning how to use new technologies?

Extremely comfortable
Very comfortable
Somewhat comfortable
Not comfortable

POLL: Have your students ever taught you new ways to use certain technologies or about the impact a new technology can have?

Yes (Please give an example)
No

Discussion Two: To what extent do you, personally, feel new technologies should be incorporated into the school environment and classroom learning? Do you *enjoy* incorporating new technologies into your teaching or do you find it burdensome? Do you ever involve your students in developing new ways to incorporate technology into the classroom?

Discussion Three: Are you ever concerned that your students are "overexposed" to technology today or have too much "screen time" in their lives? What are some of the specific ways you see students being personally impacted by today's technologies? Are the impacts you see mostly harmful or mostly beneficial for students?

Discussion Four: In your experience, to what extent do new technologies create disparities across classes, schools or districts? To what extent do new technologies create disparities among your students? What impact do those disparities have? How do you and/or your school try to address those disparities?

Online Focus Group with NWP Summer Institute Teachers

Thank you for participating in this national study of teachers being conducted by the Pew Research Center's Internet & American Life Project, the College Board, and the National Writing Project. You may log in to the discussion as many times as you wish until **6:00 AM EST on Sunday, January 29**, when the discussion will close. If you leave the discussion and then log back in, you will be taken to the last section you completed. Once you have completed all sections, you can move back and forth throughout the discussion to see others' posts and respond to them. **We encourage interaction!**

There are four sections in this discussion, and some questions require responses in order to move forward (marked mandatory). The first section includes some basic questions so we can learn a little more about you. The second section includes questions about the impact of digital technologies on your students' writing and research habits. The third section asks about your own teaching practices. Finally, the last section includes questions about using multimedia assignments. **Please complete all four sections.**

If you have any questions or concerns, or have trouble logging in to the discussion, please contact Pew Internet's Director of Research, Kristen Purcell, at **kpurcell@pewinternet.org**.

SECTION I

1. Which of the following is the HIGHEST grade level you currently teach? (Select one)

6
7
8
9
10
11
12

2. What subjects/classes do you currently teach? Please list them below.

3. Are you male or female?

Male
Female

4. What is your age? Please choose a category below.

5. For how many years have you been teaching? Select answer below.

6. In what state do you currently teach? Please tell us below.

7. Would you describe the community in which you teach as… (Select one)

A large metropolitan area or big city

A small city or suburb

A small town

A rural area

8. Would you describe the students you teach as… (Select one)

Mostly upper or upper middle income

Mostly middle income

Mostly lower middle income

Mostly low income

Mostly living below the poverty line

9. Thinking about all of the classes you are currently teaching, what is the **longest writing assignment** (approximate number of pages) you have given students this year? Please briefly describe the assignment.

10. Thinking about all of the classes you are currently teaching, which of the following best describes the **longest text** your students have had to read this year?

A long novel

A short novel

A chapter from a textbook

A short story or play

An essay or short article

Other _____

SECTION II – How Technology Impacts Student Writing and Research

1. In your experience, in what ways do the internet and other digital technologies, such as social media, Wikis, tools like GoogleDocs, cell phones and texting, and smartboards, impact your students' writing abilities? Please give examples.

2. Some feel that today's digital technologies (such as social media, Wikis, tools like GoogleDocs, cell phones and texting, and smartboards) provide students more opportunities to write, create their own content and express themselves than was the case in previous generations, thereby encouraging the development of skills such as creativity and the thoughtful articulation of ideas. Based on your experience, do you agree or disagree with this view? Please explain.

3. Some feel that today's digital technologies (such as social media, Wikis, tools like GoogleDocs, cell phones and texting, and smartboards) are undermining students' ability to focus and generally shortening their attention spans. Based on your experience, do you agree or disagree with this view? Please explain.

4. Compared with previous generations, do you feel your current students are more or less skilled at each of the following? Or do you think there is no real difference between present and past generations of students?

- Concentrating on, reading deeply, and thinking critically about long or challenging texts?
- Thoroughly researching an idea or assignment?
- Critically evaluating the information they gather?
- Formulating persuasive and/or well-informed viewpoints and arguments?
- Producing clear and cohesive written material?
- Expressing themselves creatively?

5. Overall, what do you see as the **purpose** or **value** of teaching students how to read and critically examine long or challenging texts? Is this a critical skill for today's students to learn? Why or why not? How do you see it serving them in the future, if at all?

6. Overall, what do you see as the **purpose** or **value** of teaching students how to write long and/or formal texts? Is this a critical skill for today's students to learn? Why or why not? How do you see it serving them in the future, if at all?

Section III – Teaching Writing and Research

1. What has been the **most effective** assignment/classroom lesson/teaching approach you have used to develop your students' writing skills? What specifically made it effective? Did it incorporate or address the use of digital technologies (such as social media, Wikis, tools like GoogleDocs, cell phones and texting, and smartboards), either in class or by students at home?

2. How often, if ever, do you encounter issues with or have to take into account students' **access to digital technologies** when developing your lessons and assignments? Do most of your students have high-speed internet access at home? Do they generally have access to the digital devices they need (laptops, computers, etc.) to complete their assignments?

3. What does it mean to **search for information** in today's digital environment? To what extent do your students have the skills for using a variety of search tools? How do they evaluate the **credibility** of sources? How do you teach them these skills, if at all?

4. How well do your students understand the concepts of **fair use** and **plagiarism**? Do you, personally, spend class time talking about fair use and/or plagiarism? Do you take any active steps to monitor your students' work for plagiarism (for example, online resources such as turnitin.com)?

5. Please complete the following statement… "The **biggest challenge** in teaching my students to write effectively is…..(FILL IN THE BLANK)"

6. Thinking ahead ten years — to the year 2022 — how do you think writing will be taught in middle schools and high schools? What will be different? What will be the same? Will there be radical pedagogical changes over that time, or will writing be taught largely as it is today?

SECTION IV – Multimedia and Mixed Media

1. Have you given your students any assignments this year that required them to present information in a **mixed media** or **multimedia** format?

Yes
No

IF NO:
2. Please tell us below the main reasons you do **NOT** give your students mixed media or multimedia assignments.

IF YES:
2. Can you give an **example** of a recent mixed media or multimedia assignment you havegiven your students? Did you feel it was successful? Why or why not?

3. Why did you choose to incorporate multimedia or mixed media assignments into your teaching? What do you see as the **major benefits** of this type of assignment? What are the **major drawbacks**? How do students respond to this type of assignment?

ASK ALL – RANDOMIZE TEACHERS TO RECEIVE ONE OF THREE VIDEOS
4a/4b/4c. This is a short video clip with an example of one type of multimedia assignment created by students. Please watch the video and then answer the questions below.

What does this piece of student work say to you about research and writing using digital technologies?
What advice would you give this student about where to go next with this piece?
How would you support the student?
What are the implications of this piece for your own teaching? Specifically...Do you feel producing something like this would be a valuable experience for your students and a good use of time and resources (both yours and theirs)? Why or why not?
Do you have any concerns about or face any particular obstacles in assigning this type of work? If so, what are they?

Thank you! That completes all of the specific questions we have. Your insights and experiences will be used to develop a national survey of teachers, to be conducted this spring. If there are any important elements of teaching student writing and research in today's technological environment that you feel we have not addressed, please tell us below.

In-Person Focus Group with College Board Teachers

HAVE TEACHERS FILL OUT QUESTIONNAIRE WHILE THEY ASSEMBLE AT TABLE (at end of guide)

I. INTRODUCTIONS (5 min)

- Who we are and what the study is about (note that we are building on prior teacher focus groups)
- Confidentiality
- We are taping the discussion, only researchers will have access to the tape
- May quote in report but no names will be used
- Ground rules
  - No wrong answers, interested in all experiences/opinions
  - don't speak over others so we can hear everyone on tape
  - okay to disagree
  - speak loudly so we can hear everyone on tape
  - please turn all cell phones and electronic devices off
- Incentives will be handed out at the end, pizza will be available

II. TECHNOLOGY'S IMPACT ON RESEARCH SKILLS (25 min)

Let's jump right in…

Pull out the green and red cards – Very positive, mostly positive, mostly negative, very negative

When I ask a question, please hold up the card that best represents your opinion, facing out so everyone can see it….

- **QUESTION #1: Overall, the impact of the internet on your student's RESEARCH HABITS is…? HOLD UP YOUR CARDS**

  Go around the room and probe answers. Themes to discuss…

  - Availability of more/better sources
  - Creates laziness, student too reliance on internet/search to produce answers
  - Students want instant answers, give up when they can't find them in five minutes
  - Can't judge the quality of different online sources
  - Too quick to believe everything on the internet
  - Can do research faster
  - Does it make research more interesting for students? Can dive deeper into topics?
  - Does it make research more fun?
  - Students' overall reading comprehension and tolerance for reading long documents
  - Have trouble synthesizing info into their own arguments? Too much information?
  - Students cut and paste info and submit it as their own (HOLD FOR LATER)
  - Students' overall online search skills – good or bad?
  - Students' ability to formulate good research questions
  - Students' ability to bring new facts and insights to their teachers and classmates
  - Students' overall passion for exploring a research question in depth
  - Students' ability to contribute their own knowledge and experiences to a subject
  - Students' attention spans
  - Students' ability to accept ambiguity when there is no clear answer
  - Students' overall critical thinking skills
  - Students' ability to see multiple sides of a topic

III. TECHNOLOGY'S IMPACT ON WRITING SKILLS (25 min total)

- **QUESTION #2: Overall, the impact of the internet and other digital technologies like cell phones and texting on your student's writing skills is…? HOLD UP YOUR CARDS (15 min)**

  Go around the room and probe answers. Themes to discuss…

  - Grammar/Spelling
  - Overall structure/organization/flow of written work
  - Willingness to edit their own work
  - Ability to edit their own work
  - Cohesion of thoughts and ideas in writing assignments
  - Students' ability to find their own voice in their writing
  - Students' ability to develop and understand different writing styles
  - Students' ability to support an argument with facts
  - Students' ability to formulate their own opinions
  - Collaboration with others
  - Creative writing
  - Formal writing
  - ability to discuss a topic at length
  - originality in their thinking and writing
  - awareness of audience
  - word choice

- **How much of an issue is plagiarism? (10 min)**

  - Do students fully understand what plagiarism is and when they are doing it?
  - Do students view plagiarism as an ethical issue?
  - Do you spend class time on this issue?

IV. Constructing assignments/Teaching research and writing (35 min total)

- **Construction of assignments (10 min)**

  Given everything we've just talked about, how does this impact how YOU construct research and writing assignments and effective research and writing skills?

  - First, is it getting harder to create research and writing assignments for students?
  - How much do you find yourself changing/adjusting your…
    - teaching methods
    - assignments
    - expectations in response to students' research and writing habits and behaviors?
  - Enforce rules about sourcing? Require non-internet sources?
  - Spend class time teaching about how to evaluate online sources and find alternative material/primary sources? How do you do this?
  - Assuming most research gets done online, are you okay with that? In general, do you embrace that trend or push against it?
  - Do you regularly vet student papers for plagiarism? How so?
  - Do you allow students to submit things in multi-media formats or via collaborative tools?
  - How do digital divide concerns shape your assignments?

- **What's the MOST SUCCESFUL *research/writing* assignment or lesson you've used? (10 min)**
    - What specifically have you found DOES NOT WORK?
    - How receptive are your students to learning approaches to research that go beyond search engines and online sources?
    - What's the biggest obstacle you face in teaching effective research and writing skills? (Access issues, student impatience, lack of time)

- **What skills do your students come to you with and what do you have to teach them? (10 min)**
    - What skills do you think they should come to your class having already mastered? How/when should that learning begin?
    - What skills do you think you should be teaching at this level?
    - Should these digital literacy skills be incorporated into existing curricula or be a separate curriculum?
    - Do teachers have time to incorporate these lessons into their teaching?

- **Do your students ever teach you new ways to use certain technologies or the impact a new technology can have? Do you ever involve your students in developing new ways to incorporate technology into the classroom? (5 min)**

V. OTHER IMPACTS OF TECHNOLOGY ON TEACHERS/STUDENTS (15 min)

QUESTION: Overall, technology has a (positive/negative) impact on your ability to do your job well?

Go around the room and probe answers. Themes to discuss…

- Professionalization and training?
- Communicate and/or collaborate with one another? Use online teaching forums to give/seek advice about things like lesson plans, classroom discipline?
- Communicate with students? Does technology strengthen or weaken communication between teachers and students?
- Communicate with parents/families?
- Disparities across students?
- Support from school in providing *access* to new technologies to teachers and/or students? Training?
- Does your school provide any specific *training* or *support* to help teachers use new technologies effectively?
- Do things like cell phones, texting, IM, etc distract your students' attention from what's happening in class? Rules?
- Cheating and plagiarism [already covered]

VI. CLOSING THOUGHTS (10 min)

Before we end, are there things we didn't talk about that you want to bring up?

One last question….Given the pace of development in digital technologies, where do you see the classroom/school environment 10 or 20 years from now? How will it be different/similar to today's classrooms? How will students have changed?

[INCENTIVES AND PIZZA]

Pew Internet/College Board/National Writing Project Focus Group
December 13-14, 2011

1. Which grade level(s) do you currently teach? **(circle all that apply)**

6 7 8 9 10 11 12

2. What subjects/classes do you currently teach? Please list them below.

_____
_____
_____
_____
_____
_____
_____
_____

3. Are you….**(circle one)** **Male** **Female**
4. What is your age? _____
5. How many years have you been teaching? _____
6. How many years have you been teaching *at this school*? _____

(TURN OVER)

7. What is the single biggest POSITIVE impact digital technologies (the internet, cell phones, etc.) have on students today?

_____

_____

_____

_____

8. What is the single biggest NEGATIVE impact digital technologies (the internet, cell phones, etc.) have on students today?

_____

_____

_____

In-Person Focus Group with College Board Students

STUDENTS FILL OUT QUESTIONNAIRE WHILE THEY ASSEMBLE AT TABLE (at end of guide)

I. INTRODUCTIONS (5 min)

- Who we are/what study is about
- Confidentiality
- We are taping the discussion, only researchers will have access to the tape
- May quote in report but no names will be used
- Ground rules
  - No wrong answers, interested in all experiences/opinions
  - be considerate
  - don't speak over others so we can hear everyone on tape
  - okay to disagree
  - speak loudly so we can hear everyone on tape
  - don't need to raise your hand
  - please turn all cell phones and electronic devices off
- Incentives will be handed out at the end, pizza will be available

II. TECHNOLOGY AND RESEARCH (50 min total)

A. What is research? (10 min)

Let's start by talking about doing research for school projects. First, when I use the phrase "do research," what's the first thing that comes to mind? This is question #1 in the survey you filled out. Let's go around the room. **[WRITE KEY WORDS ON BOARD]**

- Do you do a lot of research for school assignments?
- Do you ENJOY doing research? Is it fun, challenging, hard? [Probe why/why not]
- What research project you've done recently did you really like? Why?

B. Online Research (20 min)

Let's look at the first three items in the large grid, **Q5**…

- **When was last time you did research on the internet?**
  - What does that entail, describe that process for me. Mostly search engines? How do you start?

- What **search engines** do you use most often?
    - Where/How did you **learn** to use those?
    - How do you **decide which search results to look at**?
    - How much **time** does it take to go through search results?
- Are there **other specific sites** online you go to when you have to do research for school?
    - What do you like about those sites?
    - Where/How did you learn about them?
    - Do you ever use library websites?
- When you're doing research online, is that usually at home, at school, or someplace else? Are you usually alone or working with someone?

- **When was the last time you did research on something NOT using the internet?**

- **When was the last time you did research physically IN A LIBRARY?**
    - Was that using library computers?
    - Working with a librarian?
    - Searching stacks or printed material?

C. Deep dive into research process (20 min)

- **When you have to start researching something, what is usually your FIRST STEP? What is the very first thing you do?**

- **Let's talk about Q6 in the survey….**
  Take out the red and green cards, and when I read each item, hold up the answer you wrote down….[very easy/easy/difficult/very difficult]

    - Find trustworthy information on the internet for your school assignments
    - Figure out how trustworthy different online sources are

      PROBE: How do you figure it out?
        - How did you learn how to do this? Did someone teach you?

        - Overall, if you had to say, is most info you find online accurate or not?
    - Use a search engine to find good information on the internet
    - Figure out the original source of online information
    - Sort through online search results to find the best material

PROBE: How much time does this take?

    - Sort through online content in general to find good material
    - Pull together all of the different online information you find into a cohesive project or paper

- **Overall, what's the <u>BEST</u> part about being able to do research online?**
- **What's the <u>WORST</u> part?**
- **Do you think technology <u>makes your research skills better or worse</u>?**
- **What would it be like to do research without the internet?**

III. TECHNOLOGY AND WRITING (30 min total)

A. What is writing? (10 min)

Let's switch gears and talk a little bit about writing.

- First, look at Q4 in the survey you filled out. When you hear the term "writing" what's the first word that comes to mind? **[WRITE KEY WORDS ON BOARD]**
- Altogether, how much writing do you do, in and out of school? What kinds of writing?
- Do you ENJOY writing? Is it fun, challenging, hard? [Probe why/why not]

B. Deep dive into writing process (10 min)

Let's talk about the actual process of writing, when you are working on school writing assignments…

- Tell me about your writing process, when you have an assignment to do. How do you approach that?
- When writing for school assignments, do you usually write by hand or using a computer or other digital device? What device do you like to write on? Why?
- Now, pull out the yellow and blue index cards. I'm going to list some different things you might use to write and I want you to tell me if they make you a **<u>better (more skillful)</u>** writer -- [BLUE YES] or [YELLOW NO]

- Spell check
- Grammar check
- Digital thesaurus (built into your word processing program)
- Cut and paste
  - **PROBE PLAGIARISM HERE**
- Texting with your friends
  - **PROBE POS/NEG IMPACT OF INFORMAL WRITING HERE**
- Using social network sites

- What if I listed those same things, and asked you if they made the writing process **FASTER**, yes or no? Do they make writing easier?

C. Perceptions of formal writing (10 min -- may skip for time)

I've given each of you a set of 5 skills on the purple index cards. Without talking to each other, I want you to quickly sort those by how important you think each will be to your success 20 years from now. Most important on top, least important on the bottom.

- Formal writing
- Synthesizing large amounts of information
- Creative thinking and expression
- Finding information quickly
- Multi-media skills

What did you have on top? Bottom? Where is formal writing and why?

IV. Technology and broader impacts (20 min total)

Let's talk about the broad impacts using technology might have on students like yourselves.

- In your opinion, what is the **most positive thing** about being a student in today's technological world, the best impact thing digital technology does for students today?
- What is the **most negative thing**, the worst thing digital technology does for students?
- I want you to use the blue and yellow cards again to tell me if you agree or disagree with each of the following assertions people make….

  Overall, digital technologies like the internet and cell phones lead students to…
  - Have short attention spans

- Explore their worlds more fully
- Expect to find information easily and quickly
- Be more creative
- Work together and collaborate with others more
- Spend too much time in front of screens
- Cheat more often and take more shortcuts

VI. CLOSING (5 min total)

Thanks so much for participating and sharing your opinions today. Does anyone have any final thoughts they want to share?

We may do more focus groups like this with students your age….

- Are there things we didn't ask you about or cover today when it comes to technology and research and writing that you think we should?

[PIZZA AND INCENTIVES]

Pew Internet/College Board/National Writing Project Focus Group
December 13-14, 2011

1. What is your grade level? (circle one) **9** **10** **11** **12**

2. When you hear the term "research," what is the FIRST WORD that comes to mind?_____

3. If you had to define "doing research" in a SINGLE sentence, what would you say?

_____

_____

_____

4. When you hear the term "writing," what is the FIRST WORD that comes to mind? _____

5. When was the LAST time (most recent time) you…

(PUT A CHECK IN THE COLUMN THAT BEST REPRESENTS YOUR ANSWER)

	Today	Within the past week	Within the past month	More than a month ago	Never
Used the internet to do research for school?					
Did research for school some other way, NOT using the internet?					
Read material for school on a desktop or laptop computer?					
Read material for school on a handheld device like an iPad, e-reader, or cell phone?					
Read material for school in print (hard copy)?					
Used digital technology (email, the internet, cell phones, text messages, etc.) to collaborate with other students on a school assignment?					
Used digital technology to communicate with friends SOCIALLY while in school?					
Used digital technology to kill time or entertain yourself while in school?					

Q6. On a scale of 1 to 10, how easy or difficult is it to….

Find trustworthy information on the internet for your school assignments

1	2	3	4	5	6	7	8	9	10
(very easy)									**(very difficult)**

Figure out how trustworthy different online sources are

1	2	3	4	5	6	7	8	9	10
(very easy)									**(very difficult)**

Use a search engine to find good information on the internet

1	2	3	4	5	6	7	8	9	10
(very easy)									**(very difficult)**

Figure out the original source of online information

1	2	3	4	5	6	7	8	9	10
(very easy)									**(very difficult)**

Sort through online search results to find the best material

1	2	3	4	5	6	7	8	9	10
(very easy)									**(very difficult)**

Sort through online content in general to find good material

1	2	3	4	5	6	7	8	9	10
(very easy)									**(very difficult)**

Pull together all of the different online information you find into a cohesive project or paper

1	2	3	4	5	6	7	8	9	10
(very easy)									**(very difficult)**