This paper presents the findings of two surveys comparing the frequency and use of various digital and communication technologies by high school and college students. Differences between populations, implications for teaching, and questions for further study are explored. Results suggest high school teens may bring facility with newer technologies to college.

INTRODUCTION

Some educators believe that, because today’s teens have grown up using digital media their whole lives, they may be developing different ways of learning. Studies do suggest that teens are much more interactive, absorb information from many sources simultaneously (Instant Messaging (IM), games, blogs, etc.), and are more involved in content creation than previous generations. Faster Internet connections at home have led to an explosion of accessible applications, games, and social software on the Web. Kids today are part of a “participatory” culture that learns with and from an online community of peers. Most of this activity occurs outside structured education, yet it nevertheless involves a lot of reading and writing.

Many of today’s high school teens will become college students; in fact, almost half of traditional age college students still are technically teenagers. With rapid developments in digital devices, software, and online communities, many instructors feel compelled to update traditional pedagogies in order to take advantage of new teaching and learning opportunities. Experimenting with new technologies can be extremely time intensive and yet still provide no guarantee of immediate improved learning. In addition, with the “next new thing” always looming, it is difficult to decide where to invest energy.

If educators want to provide effective tools for teaching, knowing more about the technology habits of the students might help to focus planning. What digital devices do students prefer and use easily in their everyday lives? What types of online resources do they consult regularly? Do high school students use different technologies than college students do? What habits might high school students continue in college? Familiarity facilitates learning and teaching. Choosing technologies that everyone already uses or can adopt easily and then looking for teaching potential within them may be a reasonable goal in itself.

The Pew Internet and American Life surveys provide excellent data on teen technology use and Internet connectivity across all generations. But the Pew research does not address high school and college student activities specifically or separately. This study attempts to fill this gap. By comparing the type and frequency of various technologies used by students from a liberal arts college and a small-town high school in the Pacific Northwest in Spring 2007, the researchers discover some of the similarities and differences in the technology habits of these two populations. The following paper presents the results of this study, notes implications for teachers, and suggests avenues for further research.
**METHODOLOGY**

Surveys can be a good exploratory tool for getting answers to specific questions about a population as well as helping to highlight new issues for further research. The initial goal was to find out which technologies high school and college students used the most and to see if there was a difference. Even though the results reveal preferences and experiences of the local populations, they also suggest valuable patterns for wider consideration and inquiry.

**Student Populations**

The small-town high school surveyed in the study is situated in a rural county outside a metro area in the Northwest of the United States. As the only public high school in town, it is large and reflects the local population: mostly white, with growing Hispanic-origin inhabitants, families with moderate income and education levels, and moderate to conservative values. The private 4-year liberal arts college located nearby attracts a largely white, traditional college-age population from educated, middle class families living in other small towns in the West, Alaska, and Hawaii. A small number of older students attend the professional or continuing education programs associated with the college.

Researchers provided a variety of paths for students in the high school to take the survey, but did not screen for a representative sample. College students answered an email solicitation sent to all students. Recruitment methods and participant profiles follow.

**Survey Questions**

The researchers selected the web-based survey tool SurveyMonkey because of its ease in generating and administering surveys. In addition, the program provides a simple way to view and analyze data. Inspired by the Pew Internet studies, the researchers focused survey questions on content creation, communication, and frequency of Internet and electronic tool use. They divided the survey into sections to separate out different issues. Sections 1 and 2 concentrated on the technology devices and websites students actively used or visited. Section 3 addressed content creation, specifically, what students are actively creating, not just visiting. Section 4 probed frequency of communication using specific devices or Internet sites. Section 5 surveyed device and website use for school work.

In general, high school and college participants answered the same questions, but each group received different additional questions. For instance, the survey probed high school students for information about parental education level, student aspirations for college, and Internet connectivity at home. In addition, at the request of district officials, the high school survey contained three questions about communication with the high school. The college students’ survey similarly included questions about graduate school aspirations, major, work, and questions about campus access to the Internet. Both surveys requested information about GPA and gender. The surveys also offered opportunities for students to comment throughout. (see Appendix A)

**Survey Participation and Distribution**

For technical reasons, soliciting participation and distributing the surveys differed greatly between the groups and likely resulted in the uneven participation rate of responses. It was a simple matter both to solicit participation and distribute the survey to the college students via campus email. Surveying the high school students was much more complex. First, working with subjects under 18 requires parental consent or the ability to prohibit their child’s participation in the study. In addition, because these high school students did not have a common email system through which one could distribute the survey, researchers arranged to advertise the online survey offline. (Details on recruitment and distribution of the high school survey are included in Appendix B.)

**Survey Implementation**

The researchers launched the college survey first, emailing the survey announcement and web address to each student. Responses arrived almost immediately. By the end of the first day 450 students had responded to the survey. Over the next three weeks a total of 619 out of about 2200 total students responded, so that first day was key.

The high school launch was different since it required finding participants offline and convincing them to get online and take a survey (see Appendix B). Nevertheless, by the end of the three-week survey period, 385 responses from a potential of 1900 students dribbled in. After culling out duplicates, there remained 325 good surveys out of approximately 1900 students. About 58% of the respondents took the survey on campus via the high school network.

In the end, the best way to work with an online survey is to distribute it online. The convenience of clicking and taking a survey on the spot would have overcome many of the distribution and response issues with the high school survey. One must be highly motivated to take an online survey advertised offline, and not many students were willing to make the effort.

**Survey Results**

Despite distribution issues, a considerable number of responses resulted from the effort, even from the high school students. While participants in the survey were self-selected, the findings nevertheless reveal some interesting insights into the technologies that students use and how those tools are used.

**Respondent Profile**

**Gender**

Among high school respondents, slightly more male (51%) than female (49%) students took the survey, a representative percentage of male to female students (52:48) at the school generally. In contrast, the college student respondents were predominantly female (65%), even though the general college breakdown is less skewed: 54% female to 46% male. It might be interesting to find out if females are typically more avid online survey respondents.

**Academic Achievement**

High school students who took the survey seemed to have higher grades than the high school population generally. Survey participants reported GPAs that averaged 3.2, surpassing the 2.5 cumulative GPA stated by officials at the high school. It is likely that the participants came from families with slightly higher education levels as well. Parents of participants had attended at least some college (65%), which is about 10% higher than census reports on the county population. Participants also intended to go to college (64% definitely; 22% probably) at higher rates than the 40% reported by the high school generally. Although participants may not have mirrored the high school population academically, they did provide researchers the...
opportunity to glimpse how a more college bound group might view and use technology.

The college participants also seemed above the college norm academically. College survey participants reported GPAs that averaged 3.4, surpassing the 3.1 cumulative GPA stated by college officials that term. Most survey participants at least considered graduate school (38% definitely; 54% undecided), while, for the college as a whole, exit interviews with seniors suggested only about 20% planned to pursue further education.

Class Status

Fewer seniors (16%) took the survey in high school than all other classes (juniors 24%; sophomores 27%; freshmen 31%). In college, the seniors had the highest percentage of respondents (29%), followed by juniors (25%), sophomores (23%), and freshmen (24%).

MEDIA ACCESS/USE

Daily TV vs. Computer Use

Both college and high school students in this survey seemed to watch fewer hours of television on a typical day than they used the computer, though the college student gap was larger. High school students averaged 1.8 h of television viewing to 2.3 h on the computer while the college students averaged 1.6 h of television to 4.3 h on the computer.

Internet Access

Both high school and college students had access to high speed Internet at their schools. Ninety nine percent of college students had access to at least one computer in their room, dorm, or off campus home, but 84% said they also used computers at campus labs and the libraries. The residential college students in the survey (72%) had the 24/7 access provided them by the college to the dorms. Non-residential students, whose Internet access at home varied, nevertheless also used the Internet via academic departments, at work, and public access coffee shops.

High school students have wireless access on campus and hard-wired access via computers in some classrooms, the computer lab, and the library. This access is filtered, however, and experience proved that the wireless can be unstable with lots of users. In addition, high school students have more limited time than college students to use the network for non-curricular activity since they are in class most of the day. While 11% of the students said they had no Internet access at home, 75% of students did have high speed Internet access at home, and 11% had at least dialup. In addition, a number of students (61%) had Internet access via their cell phones.

Devices

Most students said they had access to a digital camera and an MP3 player, but girls used digital cameras more often than boys in both college and high school. More high school students had access to camcorders than college students, males slightly more than females in both populations. Three quarters of the males in both college and high school had access to game devices, but high school females were more likely to have devices than college females.

PDAs and combo devices like Treo, now commonly referred to as Smartphones, accounted for a small percentage of access

Table 1

<table>
<thead>
<tr>
<th>Devices</th>
<th>PDA</th>
<th>Treo type</th>
<th>Still camera</th>
<th>Camcorder</th>
<th>Webcam</th>
<th>MP3 players</th>
<th>Game devices</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High school</strong></td>
<td>10</td>
<td>5</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td><strong>Boys</strong></td>
<td>20</td>
<td>10</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70</td>
</tr>
<tr>
<td><strong>Girls</strong></td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
</tr>
</tbody>
</table>

N= 156 high school boys  N= 191 college boys
N= 155 high school girls  N= 421 college girls
by both groups, although high school students, especially males, reported using these devices more often. Similarly, more high school than college students had access to webcams, though this time high school females had an edge (see Table 1).

### Internet

The vast majority of surveyed students conducted Internet searches using web sites like Google, although more college students did so daily than high school students. About 70% of all students downloaded at least some music, although more high school students did so daily than college students. High school students visited YouTube and gaming sites more often than college students and, within each group, a higher percentage of males did so than females. College students tended to visit websites like MySpace and Facebook more often than high school students. Females had only a slight edge in both groups. Somewhat less than half of students visited blogs at some point, but not many did so daily. Fewer students overall seemed to visit podcasts and photo sites like Flickr than the other choices (see Tables 2 and 3).

### Content Creation

Smaller numbers of students generally tended to create content than to consume it. Using digital cameras led the way, with college students, especially females, the more likely creators. More high school students than college students created games, music, and web pages, shot and edited digital movies, and broadcasted to YouTube. Within each group, males tended to lead the way over females. High school students also were more likely than college students to send pictures via cell phone and post to blogs, but females in both groups did so more often than boys (see Table 4).

### Games

Twice as many high school students as college students in this survey played computer games on a daily basis, both through stand alone devices and online. In fact, the percentage of males that played games daily in both groups was quite a bit higher than that of females. The same trend held for game creation (see Table 5).

### Communication

Cell phones were more popular than land phones, especially with college students. In fact, half of college students said they rarely or never used a land phone, although girls were more likely to do so daily. About 55% of high school females and college students text messaged daily, while only 36% of high school males did. Daily communication via MySpace type software was also more likely among college than high school students, though females led their male counterparts in each group. College students also seemed to use social networking websites like MySpace more regularly than high school students for communication (see Table 6).

### School Work

College students edged high school students slightly in reporting daily use of the Internet (such as via Google) for school work. High school students used Wikipedia for school work more regularly than college students, although three quarters of college students did report using it some. On the other hand,
Table 3

Visit Web Daily

<table>
<thead>
<tr>
<th>Type</th>
<th>High school boys</th>
<th>High school girls</th>
<th>College boys</th>
<th>College girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>N= 155 high school boys</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N= 153 high school girls</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N= 189 college boys</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N= 419 college girls</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4

Create Content

<table>
<thead>
<tr>
<th>Type</th>
<th>High school boys</th>
<th>High school girls</th>
<th>College boys</th>
<th>College girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>N= 152 high school boys</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N= 153 high school girls</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N= 191 college boys</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N= 419 college girls</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5

Games

- Play Online (daily)
- Play Devices (daily)
- Create Games/animation at least some

<table>
<thead>
<tr>
<th>Type</th>
<th>High school boys</th>
<th>High school girls</th>
<th>College boys</th>
<th>College girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Play Online (daily)</td>
<td>20</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Play Devices (daily)</td>
<td>25</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Create Games/animation at least some</td>
<td>30</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

N= 156 high school boys
N= 154 high school girls
N= 189 college boys
N= 419 college girls

Table 6

Communication Daily

<table>
<thead>
<tr>
<th>Type</th>
<th>High School Boys</th>
<th>High school girls</th>
<th>College Boys</th>
<th>College Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land phone</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cell Phone</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>IM/Chat daily</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Text message</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>MySpace type</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

N= 150 high school boys
N= 151 high school girls
N= 191 college boys
N= 419 college girls
Table 7

School Work (Some use)

<table>
<thead>
<tr>
<th>Type</th>
<th>High school</th>
<th>College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wikipedia</td>
<td>80%</td>
<td>90%</td>
</tr>
<tr>
<td>Email</td>
<td>60%</td>
<td>70%</td>
</tr>
<tr>
<td>Digital camera</td>
<td>40%</td>
<td>50%</td>
</tr>
<tr>
<td>Camcorder</td>
<td>20%</td>
<td>30%</td>
</tr>
<tr>
<td>Flickr</td>
<td>30%</td>
<td>40%</td>
</tr>
<tr>
<td>MySpace/Facebook</td>
<td>20%</td>
<td>30%</td>
</tr>
<tr>
<td>Word processing</td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>Calculator</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>Powerpoint</td>
<td>2%</td>
<td>5%</td>
</tr>
<tr>
<td>Spreadsheet</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Television</td>
<td>0%</td>
<td>1%</td>
</tr>
</tbody>
</table>

N = 300 high school students  N = 607 college students

Table 8

School Work (Daily use)

<table>
<thead>
<tr>
<th>Type</th>
<th>High School</th>
<th>College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web</td>
<td>35%</td>
<td>45%</td>
</tr>
<tr>
<td>Wikipedia</td>
<td>25%</td>
<td>30%</td>
</tr>
<tr>
<td>Email</td>
<td>10%</td>
<td>20%</td>
</tr>
</tbody>
</table>

N = 300 high school students  N = 607 college students
89% of college students used at least some email for schoolwork while only 45% of high school students used it at all for homework (see Tables 7 and 8).

Other uses of technology for school work varied: While calculators and Powerpoint were fairly popular with both groups, devices like cameras seemed to be used more by high school students. Additionally, college students used word processing and spreadsheets considerably more than high school students.

Other Devices and Activities

PDAs and Combo Devices (AKA Smartphones)

Very few students used PDAs or Smartphones like Treo according to this survey, although high school students seemed to use them more. (see Table 9) Neither group reported using RSS much, but 41% of high schoolers and 31% college students also said that they didn’t know what it was. High school students used voice chat such as Skype or iChat more than college students, but this technology was not used extensively.

In addition, while high school students were more likely to create podcasts, post to wikis, broadcast to YouTube and customize avatars or anime, neither group engaged in these activities much.

Discussion

Respondent Profile

The higher GPA average for both high school (3.2) and college (3.4) students tends to suggest these survey participants were high achievers. In addition, more of the younger high school students (58% were freshmen and sophomores) and older college students (juniors and seniors comprised 54% of participants) answered the survey. Nevertheless, the technology habits of 325 high school students, 86% of whom at least contemplate going to college, may be worth consideration, especially when compared with those of the current college students in the study.

“...the technology habits of 325 high school students, 86 percent of whom at least contemplate going to college, may be worth consideration, especially when compared with those of the current college students in the study.”

Similarities

Virtually all students have access to computers and the Internet and use them frequently. Television seems to be taking a back seat to computer use for both college and high school students, at least according to average reported use per day. This may be a trend to study, especially for high school students since media reports typically suggest teens spend a significant amount of their free time watching television.

Both groups also communicate a lot, using cell phone, Instant Messaging (IM), text, and social software technologies. The majority of students in both groups have MySpace and/or Facebook type accounts. Instant Messaging (IM) is more popular among both groups; two thirds of both college and high school students IM at least some and a third of them chat daily. But cell phones seem to be the most popular communication...
mode among all students along with related text messaging. Two thirds of high school students (63%) and 87% of college students use the cell phone daily, and 50% of both groups text message daily. Though not directly comparable, these results may suggest that use of these technologies has increased since a 2005 Pew study reported that 45% of teens owned cell phones and 33% have used that phone to text message.8

These technologies are ubiquitous, fit well into students’ daily lives, extend their natural desire to build social community, and are increasingly easy to use and even afford. It is not surprising most of them engage in these activities.

Differences

High school students in this survey seemed to engage with newer technologies more than college students. They were more likely to shoot and edit digital movies, create music, websites, games/animation, use MP3 players, visit YouTube, post to blogs, and send pictures via cell phone. High school students also appear to play games online and via stand alone devices more than college students. College students may be more likely to use digital cameras, but more high school students said they used camcorders and digital cameras for schoolwork. Although all students seemed more likely to consume content than create it, high school students tended to create content to a greater degree than did college students.

**“High school students in this survey seemed to engage with newer technologies more than college students. They were more likely to shoot and edit digital movies, create music, websites, games/animation, use MP3 players, visit YouTube, post to blogs, and send pictures via cell phone.”**

There might be a number of reasons to explain why high school students may engage in newer technologies more than college students do. Teens living at home may have more access to technology. They may have more leisure time. As developing teens, their interests may tend more toward the experimental and social. Maybe college students are simply behind the curve of new technology. It might also be true that college students’ daily lives incorporate different interests. Further research might tease out whether students’ technological interests drive what they do or actually change as they mature in college.

On the other hand, while most students used social networks like MySpace/ Facebook, college students seem to use them more often, suggesting they integrate them into their daily lives more than high school students. With all the publicity about high school teens on MySpace, this might be a surprising result. But high school students may communicate via cell phones or IM more than social networks. This may be due both to parental controls and, among younger teens, more limited opportunities to engage with that technology.

Perhaps utilitarian reasons drive college students to use this technology more regularly than high school students. Interviews suggest that college students get more timely responses from friends using Facebook than campus email not only for socializing, but also to communicate about homework. These students also note MySpace accounts help them to stay in touch with old high school friends (B. Valentine, unpublished data). College students probably have more opportunity to use a computer during the day than high school students.

College students also seem much less likely than high school students to communicate via a landline. Half never or rarely use a landline, despite the fact that the college provides each student with a landline number (though not a phone set). Cell phone convenience for both students and parents may already have replaced the need for landlines at college. A healthy body of research worth consulting now exists on cell phone, IM/text, and social networking communication. Further research could target the evolving role of these technologies in the daily lives of college students.

**Gender and Technology Use**

In both surveys, more males than females said they made and edited digital movies, created music, websites, games/animation, used MP3 players, and visited YouTube. More females than males sent pictures via cell phone, used digital cameras, posted to blogs, and visited MySpace or Facebook. Further research might focus on whether there really is a gender difference related to sociality and a desire to experiment with new technologies.

**School Work**

As noted already, high school students said they used digital cameras and camcorders more in schoolwork than college students. Perhaps high school teachers are integrating these technologies more into coursework or providing students the choice to fulfill class projects in various media. It may also be a function of the diversity of classes that a high school student takes as compared to a college student.

**“While engaging in school work, college students searched the Web more often while high school students more frequently used Wikipedia and television.”**

While engaging in school work, college students searched the Web more often while high school students more frequently used Wikipedia and television. College students also use word processing and spreadsheets more often. It is possible that college students eschew Wikipedia, either because they discover better online resources or because their professors denigrate its use in research papers. One might expect too that college students would engage in more sophisticated research, using a greater variety of sources, searching, word processing, and spreadsheets.

Both groups used calculators and Powerpoint often and in relatively similar measure for schoolwork. High school students all have to take three to four math classes, especially those who are college bound, while college students do not. This might explain the widespread use of calculators among high school students. Powerpoint also appears to be the standard in both college and high school for making presentations.

A third of students in both groups also used MySpace/ Facebook in some way for homework. Personal websites such as these have become important communication tools, so it is not surprising a number of students may use them to share homework tips or even work together on projects.
Some of the issues raised by the results of this survey may help educators focus on what technologies might be most effective to adopt for teaching and learning.

- Communication among and with students is easy. Teachers can always use the official channels like email and course management systems (like Blackboard) to reach students with class business. But maybe more creative use of peer-to-peer communication can be leveraged to serve the classroom context.

- Digital access is no longer an issue. Students search the Internet regularly. Not only can teachers point them to preferred content, but also have them bring their own choices to class discussions. What they need to learn is how to filter, evaluate, select, and use information. The Internet provides a real life classroom. There is evidence they read less. Make them question what they already read.

- Plagiarism is easier to do. Students can copy content for papers wittingly or unwittingly. But teachers can detect plagiarized content almost as easily with prevention programs like Turnitin. Teaching opportunities abound in discussions and examples of what is or is not plagiarism.

- Some say technology based activities distract students from doing homework. In fact, they may be able to do traditional homework more efficiently, leaving extra time for play. Use that love of play to turn distractions into assignments. Let them turn their experiences with different technologies into learning opportunities.

- Familiarity with a variety of easy to use tools means students can shift from being consumers of content to being creators. There are many simple yet powerful online technologies that can be leveraged to produce content with a little imagination. Many students already know how to consume content through many of them.

- On the other hand, students are not technologically savvy across all tools, only the ones they use. If it is not easy or personally compelling, they may not know how to use it. Provide options to use a variety of tools as well as opportunities to learn new ones. Make sure suggested tools work simply for given assignment or be prepared to teach it.

**CONCLUSION**

A survey of students in one college and one high school may not provide hard data applicable to the general population. In fact, with the rapid changes in technology in our culture, the same survey conducted a year later may well reap different results. Nevertheless, comparing the technology lives of over 300 high school and 600 college students does elicit intriguing questions about the academic and social contexts in which they operate and how these might inform pedagogy or ideas for further research. Perhaps this has been the most valuable aspect of this study.

As technologies morph into the next cool thing, as social issues shift in nature around new habits, on what can educators focus to provide the best learning opportunities for students? How are the everyday lives of students changing and how will this affect learning and even impact knowledge creation? One might investigate, for example, which high school preferred technologies become embedded in the daily social and academic lives of college students, which diminish in relevance, and why.

Students learn some things differently today. With multiple, alternative, non-linear, content streams easily available to them, they routinely scan, absorb, and make sense quickly of mountains of visual, aural, and textual data as part of both curricular and leisure lives. Rushkoff notes that a “child with the ability to surf today’s mediaspace can pull out of linear argument while it is in progress, re-evaluate its content and relevance, then recommit or move on." As part of a participatory culture, today’s students learn some things collectively and expect their contributions to matter. Some believe these skills will give “digital natives” a competitive edge in the modern workplace.

But students also need to learn how to be more critical of what is hurled at them. And not every teen gets to participate at the same level. Access to technology alone does not guarantee equality of access to opportunities, experiences, skills, and knowledge. A Dutch study found that the “emerging digital divide” pertains to differences not in access to technology, which most have, but rather in cultural and cognitive resources at home. Students may implement new technologies with dexterity, but have gaps in basic conceptual skills that impair the learning progress.

In the end, educators must teach what they know best, and retool with new technologies that extend and expand proven pedagogies. Despite new modes of learning, some things stay the same. High school students still come to college with varied levels of critical awareness, information savvy, and technological experience. They still need to learn the difference between academic and popular literature and thought. More than ever they need to learn to seek context and history in order to think critically about what they find. They need to understand how the very media they enjoy shapes their choices and perceptions. In essence, in college they will develop critical “filters” to deal with their own life-long barrage of inputs.

Educators also need to learn more about the online culture that adolescents value: not simply to get their attention with “cool” technology, but in order to appreciate their relationships with that technology and the contexts in which they use it to further their own agendas. Time spent trying to understand the ways students absorb and contribute to knowledge in their everyday lives may expose gaps and inspire ideas for learning and teaching. Such insights can help to spark conversations that connect students to the traditional learning and skills they lack.

Taking the broad view, one might discover that, at core, students have not changed all that much from earlier generations. Perhaps today’s technologies merely highlight and extend behaviors teens have engaged in for decades: sociality, risk taking, fun. Perhaps questions generated from this study can help spotlight areas for more effective teaching and learning.

**Appendices A and B. Supplementary Data**


**NOTES AND REFERENCES**


8. Lenhart, Hitlin, and Madden, “Pew Internet: Teens and Technology.”

