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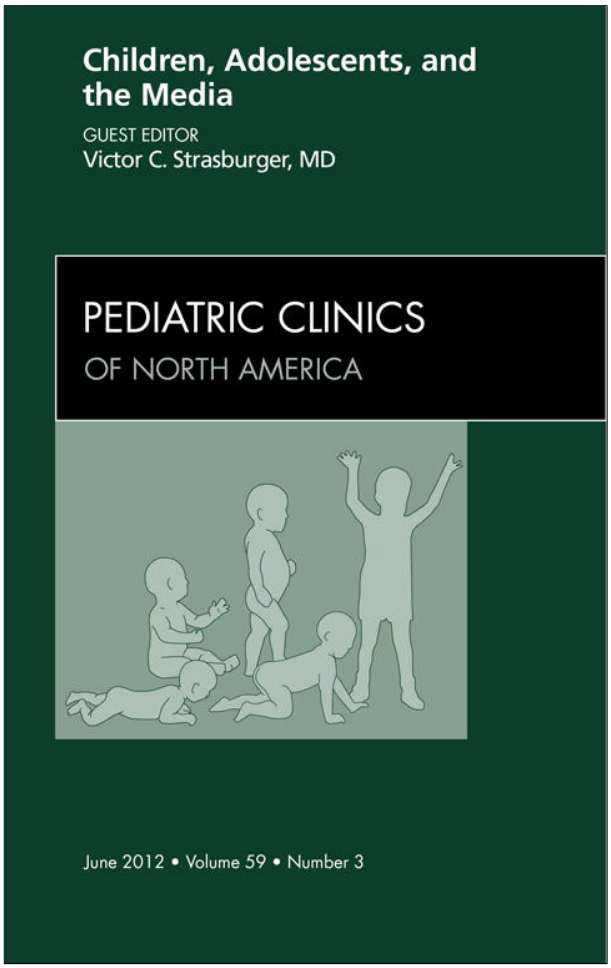

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School Daze

Why are Teachers and Schools Missing the Boat on Media?

Victor C. Strasburger, MD

KEYWORDS

• Schools • Media • New technology • Sex education • Drug education

KEY POINTS

- Children and teens spend more time with media (>7 hours per day) than they do in school.
- Many schools are using new media (computer, the Internet, iPads, cell phones) in creative ways to keep students interested and motivated.
- Young people can have radically different learning styles, and new technology can be used to teach them differently.
- Sex education and drug education programs need to incorporate media and media literacy into their curricula.
- Given the immediacy of new technology (information at your fingertips 24/7), educators need to rethink some of the basic paradigms of education (eg, rote memorization).

[My doctor's] only gone to one medical school, but if you go online, you can get advice from all over the world.

—Teenager quoted in TECHsex USA, 2011, p. 17[1]

…in a world where today's geography or social studies are quite literally tomorrow's history, it's intuitive that an easily updated, real-time text makes more sense than a 5-year-old, dog-eared and scribbled-on book that can be replaced only when there's sufficient funding.

—Editorial, Albuquerque Journal, September 9, 2011[2]

There's a saying that the music is not in the piano and, in the same way, the learning is not in the device.

—Professor Mark Warschauer, University of California, Irvine[3]

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> *We need to build a more compelling narrative that digital literacy is no longer a luxury but a necessity.*
>
> *—S. Craig Watkins, author of the Young and the Digital: What the Migration to Social Network Sites, Games, and Anytime, Anywhere Media Means for Our Future*[4]

Most American schools are 50 years behind when it comes to using media wisely and incorporating new technology into the classroom.[5] Like medicine, the educational system has always been conservative and slow to adopt to new advances and new trends. As one author notes[6]:

> *The contemporary American classroom, with its grades and deference to the clock, is an inheritance from the late 19th century. During that period of titanic change, machines suddenly needed to run on time. Individual workers needed to willingly perform discrete operations as opposed to whole jobs. The industrial-era classroom, as a training ground for future factory workers, was retooled to teach tasks, obedience, hierarchy and schedules.*

Unlike medicine, however, education only seems to have one yardstick with which to measure success: performance on standardized tests. As a result, new and creative approaches to teaching and learning fall by the wayside unless higher test scores can be documented.[7] This is a prescription for failure and is one of the reasons why American schools are so far behind in teaching students how to adapt to the brave new world of instant technology and connectedness. According to Cathy N. Davidson, codirector of the MacArthur Foundation Digital Media and Learning Competitions, 65% of today's grade-school students may end up doing jobs that have not even been invented yet.[6] Of course, funding schools in general and new technology specifically is a major hurdle for nearly all schools as well (**Fig. 1**).

MEDIA USE

Today's students spend more time with media than they do in school: between 7 and 11 hours per day, according to the 2010 Kaiser report.[8] The first "Internet class" (Class of 2015) is now just entering college (**Box 1**). Media are the leading leisure-time activity for children and adolescents, and they spend more time with media than they do in any other leisure-time activity other than sleeping.[9] By time criteria alone, one would think

Fig. 1. (Copyright © Jim Borgman/Universal Press Syndicate. Used with permission of Universal Uclick.)

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Box 1
The first "Internet class goes to college"

How the Class of 2015 Thinks Differently About Things

1. Amazon has never been just a river in South America.
2. Ferris Bueller and Sloane Peterson could be their parents.
3. They "swipe" cards, not merchandise.
4. "Don't touch that dial!"—what dial?
5. Video games have always had ratings.
6. Music has always been available via free downloads.
7. "PC" means Personal Computer, not Political Correctness.
8. Public schools have always made space available for advertising.

Adapted from McBride T, Nief R. The mindset list. Available at: http://themindsetlist.com/.

the media would be a force to be reckoned with; but the media also are powerful teachers of young people. Virtually every concern that teachers and parents have about children and teenagers is potentially influenced by the media: aggressive behavior,[10] sex,[11] drug use,[12] obesity,[13] eating disorders,[14] and depression.[15] Several studies have found a deterioration in academic performance with increasing screen time[16–22] and have linked increased screen time at a young age with the development of attention-deficit disorder and attention-deficit/hyperactivity disorder.[23–25] A recent longitudinal Canadian study of 1314 children at 29 months of age and in fourth grade found that for every additional hour of television viewed per day at 29 months of age, there was a 6% to 7% decrease in classroom participation, a 10% increase in victimization by classmates, a 9% decrease in physical activity, and a 5% increase in body mass index by the fourth grade.[26]

But the term "media" now means far more than television, movies, or music. "New" technology has become increasingly important as well, although there are only a few behavioral studies available to date. Nearly 90% of 8- to 18-year-olds now have Internet access at home, and one-third have access in their bedroom.[8] Half of young people surveyed say that they have a video game player in their room.[8] Both the Nielsen Company and the Pew Foundation have been tracking new media use:[27,28]

- American 18-year-olds now average nearly 40 hours per week online from their home computers, including 5.5 hours of streaming video.
- Nearly all teenagers (93%) now use the Internet. In a 2009 survey, 70% of 12- to 17-year-olds owned a cell phone, and 80% owned an iPod and a game console.
- More than 78% of 12- to 17-year-olds have visited social networks or read blogs.
- Some 75% of 12- to 17-year-olds now own cell phones, up from 45% in 2004. Nearly all teens (88%) are texters.
- Virtually all teenagers now have MP3 players, and they often use high-volume settings.[29] The same goes for multitasking: nearly 40% of 7th to 12th graders say that they multitask frequently, listening to music (43%), using the computer (40%), or watching television (39%).[8] Some neuroscientists worry about how efficient multitasking really is and about its impact on the developing adolescent brain.[30]

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MEDIA USE, SLEEP, AND SCHOOLS

Surprisingly, new research shows that teenagers need more sleep than older children do: 8 to 9 hours per night.[31,32] Yet media use is associated with less sleep, especially when so many different forms of media are now present in the bedroom.[8,33] Sleep deprivation has been associated with fatigue, neurocognitive impairment, increased risk of accidents, and poorer school performance.[33,34] Given the normal sleep pattern of most teenagers (staying up late at night and wanting to sleep late in the morning), does it make sense to start high-school classes earlier than grade-school or middle-school classes? School systems such as in Minneapolis have experimented with later starting times (as late as 9:00–9:30 AM), and have found significant improvements in classroom performance and test scores.[33–35]

HEALTH EDUCATION

Although most schools and school systems now have drug prevention and sex education programs, relatively few have kept pace with modern media and deal with media content (**Table 1**). Nationwide, 70% of schools still use Drug Abuse Resistance Education (DARE), even though multiple studies show that it is ineffective.[36,37] Part of its ineffectiveness is the absence of media education in the curriculum, for example, the impact of cigarette and alcohol advertising and depictions of drug use in movies and on television.[38] Similarly, sex education programs routinely ignore topics such as sex in the media and the absence of contraceptive advertising in American society.[39] Media can be part of the solution, not just part of the problem. Using media to educate children and teens about sex puts the subjects on kids' "home turf" and also helps them resist unhealthy media messages—one of the aims of media education.[40] The latter is absolutely crucial in the twenty-first century, yet the United States lags far behind other Western countries such as Canada, Australia, and the United Kingdom in incorporating media education into the everyday curriculum.[40] Numerous studies have now shown media education to be effective in preventing aggressive behavior,[41] drug use,[37,42,43] and even inappropriate sexual displays on social networking sites.[44] It is true that schools represent the final common denominator in society and therefore seem to have the ultimate responsibility for remedying all childhood ills. Nevertheless, teaching children about media can accomplish many useful health goals.[40]

USING NEW TECHNOLOGY IN THE CLASSROOM

Forty years ago, classroom teachers complained about the fast pace of the new children's show "Sesame Street," saying that it increased pressure on them to be

Table 1
What exactly are students taught about media?

	Grade School (%)	Middle School (%)	High School (%)
Students are taught the influence of media on (N = 1000 schools):			
Physical activity	43	53	63
Alcohol/drug use	51	78	89
Tobacco use	52	75	86
Sexual behavior	12	60	77
Violent behaviors	57	52	70

Data from Kann L, Telljohann SK, Wooley SF. Health education: results from the school health policies and programs study 2006. J School Health 2007;77(8):408–34.

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entertainers so that their students' attention would not wander.[45] But the flip-side of the equation is that new technology in the classroom offers nearly limitless educational possibilities:

- More than 600 school districts are now using iPads instead of textbooks. iPads cost $500 to $600, but administrators at Brookfield High School in Connecticut estimate that they spend at least that much annually on every student's textbooks, which does not include all of the add-ons (graphing calculators, dictionaries, and so forth) available on the iPads.[3]
- A Los Angeles eighth-grade teacher has his students use Twitter to chime in with questions and answers during his presentations.[46] Similarly, Purdue University developed its own backchannel system, Hot Seat, which lets students post comments and questions online during lectures. It allows quiet or shy students to speak up.[7]
- A Spanish teacher in Wesley Chapel, Florida insists that her students bring their cell phones to class; she texts them in Spanish and they respond.[47]
- With a program called MealpayPlus, parents in more than 250 school districts can track their children's lunch purchases and see exactly what they are eating.[48] Many parents use an Internet program called iParent to track their children's attendance, school assignments, and performance. In Royal Oaks Schools in Michigan, parent-teacher conferences are conducted online.
- Many schools are experimenting with "blended learning": a shift to an online environment for at least part of the school day to improve learning and productivity.
- Special-education students may especially benefit from new technology.[49] At Westmark School in Encino, California, special-education students learn fractions via brightly colored, jungle-themed pie charts, they can ask their iPads how to spell and define words, and they can practice cursive writing via a tracing application.
- Teacher training is changing as well.[50] At the Teachers College of San Joaquin in Stockton, California, "multiple learning pathways" are emphasized: that is, the need to approach subjects from many different angles to accommodate different learning styles. At Cal State—Fullerton, student teachers are immersed in interactive whiteboards, digital media tools, and Web 2.0 teaching strategies. At the University of Central Florida, teaching apprenticeships are done virtually.
- At the cutting edge of new technology, avatars are being used to interact with grade-school students one on one. Avatars can be customized for each individual, follow their eye-tracking on the computer screen, and keep them motivated.[51]

PROBLEMS WITH NEW TECHNOLOGY

With any new technology come new problems. Students may be physically present in the classroom, but downloading videos online or texting classmates. New technology has also brought new issues and concerns into schools. Should students be allowed to carry cell phones? Should they be linked up to the Internet in class? If computers are used in class, what kind of screening or blocking mechanism is appropriate? Should school libraries use Internet blocking technology? Should students be allowed to complete joint projects in chat rooms online? How should schools deal with the problems of Internet bullying and harassment or sexting (sending sexually explicit pictures via cell phone) (**Table 2**)? According to 2 separate studies, 10% to 33% of teenagers have experienced online bullying or harassment,[52,53] and as many as 20% of

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Table 2
Are cybersafety and cyberethics being taught in schools? Zogby/463 survey of 1012 teachers and 402 school administrators in February 2011

Does your school do a good job preparing students re: cybersafety and cyberethics?			
	Yes (%)	No (%)	Not sure (%)
Teachers	51	41	4
Administrators	81	16	2
How prepared are you to talk about cyberbullying?			
	Not Prepared (%)	Prepared (%)	Not sure (%)
Teachers	18	54	1
Administrators	12	63	2
How prepared are you to talk about sexting?			
	Not Prepared (%)	Prepared (%)	Not sure (%)
Teachers	20	58	3
Administrators	13	69	23

Yet, in the past 12 months before being surveyed, less than one-third of teachers taught students about:

Online content that scares them
"Netiquette"
Hate speech
Risks of social networking sites
Cyberbullying
Sexting

In the past 12 months, 36% of teachers spent 0 hours on training on these topics within their school districts. Another 40% spent <3 hours

Data from National Cyber Security Alliance, Microsoft Corporation, Zogby/463. The state of K-12 cyberethics, cybersafety and cybersecuirty curriculum in the United States. 2011. Available at: StaySafeOnline.org. Accessed September 21, 2011.

teenagers have engaged in sexting,[54] although the actual prevalence is probably closer to 5% according to the most recent study.[55]

IS THERE A NEED FOR A NEW EDUCATIONAL PARADIGM?

Arguably, new technology should be revolutionizing fundamental educational strategies. Some might question why we ask students to memorize dozens of names and dates in United States history when in the near future, their wristwatches and cell phones will be 10-gigabyte computers capable of instantaneously spitting out whatever facts are needed (**Fig. 2**). Instead, the need to teach critical thinking and how to sift through the vast amount of information—some of it good, some of it not so good—in written materials, on television, and on the Internet has become of paramount importance.

Different learning styles can now be accommodated using different technologies, but the fundamentals of reading and writing do not necessarily need to be discarded simply because of digital and visual media. Numerous reading apps support word recognition and fluency. More specialized programs such as Highlighter enable students to practice reading comprehension tactics.[56] For writing, one of the basic premises of Web 2.0 is collaboration and peer input, and file sharing allows students to do exactly that. Programs such as Google Docs give teachers options for writing

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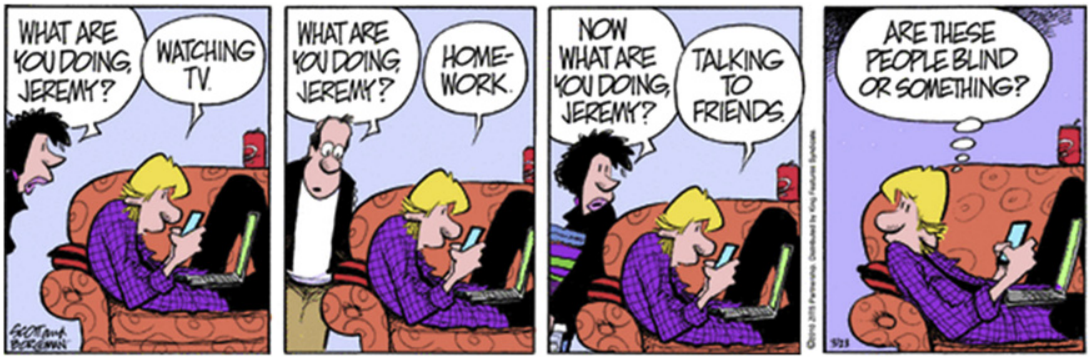

Fig. 2. (ZITS © ZITS PATNERSHIP, KING FEATURES SYNDICATE. Used with permission.)

exercises that are not confined to a single 50-minute class period.[56] Similarly, the availability of new technology should be making classroom teaching easier and more effective. Textbooks remain important, but there are instances whereby a video (eg, Ken Burn's extraordinary *Civil War* series) might be used to augment a textbook. Teachers can now choose from 10 different DVD versions of *Romeo and Juliet* (and Shakespeare wrote his plays to be performed and seen, not to be read),[5] so it makes little sense to torture middle-school students with trying to understand and master Elizabethan English.

COMMERCIALISM AND SCHOOLS

In the past 2 decades, advertisers have specifically targeted school populations to reach younger and younger audiences, and many cash-strapped schools have cooperated.[57] Advertisers have specifically targeted younger and younger children in classrooms.[57] Channel One, which is 10 minutes of current-events programming along with 2 minutes of commercials, continues to be seen in 8000 middle and high schools around the country.[58] It is seen by 40% of American teenagers.[57] Junk food ads are ubiquitous, and violent movies and prescription drugs are advertised.[59] Structured educational materials are free curricula produced by major corporations and include such items as a Campbell's soup "Prego Thickness Experiment," comparing the thickness of Prego and Ragu spaghetti sauces, and materials by Chevron challenging the existence of global warming.[57] In 2006, book fairs generated $404 million for the publisher Scholastic, which then sells noneducational products for major companies such as Disney and Nickelodeon.[60]

SUMMARY

Solutions will not be easy. Schools and teachers will not like or appreciate outsiders trying to help with educational policy. Pediatricians, however, are also media experts, and media are now inextricably linked with schools and learning. Possible solutions now include:

- Later starting times, especially for high schoolers
- Incorporating media-related elements into sex education and drug prevention programs
- Teaching media education in a K-12 fashion, including the proper use and "etiquette" of new technology
- Helping teachers use new technologies in the classroom
- Formulating school rules about cell phone use, texting, sexting, and cyberbullying

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- Banning advertisers and advertising from school
- Formulating a new definition of what it means to be "educated," and jettisoning the need for rote memorization (except for, perhaps, the multiplication tables in grade school).

Schools, and the American education system, must change. The only question is how long will it take before the traditionally conservative educational system catches up with rapidly advancing new technology? Until then, the American educational system will remain decades behind the times and hopelessly out of date.

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