

Teen Sexting and Its Association With Sexual Behaviors

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Objective: To examine the prevalence of sexting behaviors as well as their relation to dating, sex, and risky sexual behaviors using a large school-based sample of adolescents.

Design: Data are from time 2 of a 3-year longitudinal study. Participants self-reported their history of dating, sexual behaviors, and sexting (sent, asked, been asked, and/or bothered by being asked to send nude photographs of themselves).

Setting: Seven public high schools in southeast Texas.

Participants: A total of 948 public high school students (55.9% female) participated. The sample consisted of African American (26.6%), white (30.3%), Hispanic (31.7%), Asian (3.4%), and mixed/other (8.0%) teens.

Main Outcome Measure: Having ever engaged in sexting behaviors.

Results: Twenty-eight percent of the sample reported having sent a naked picture of themselves through text or e-mail (sext), and 31% reported having asked someone for a sext. More than half (57%) had been asked to send a sext, with most being bothered by having been asked. Adolescents who engaged in sexting behaviors were more likely to have begun dating and to have had sex than those who did not sext (all $P < .001$). For girls, sexting was also associated with risky sexual behaviors.

Conclusions: The results suggest that teen sexting is prevalent and potentially indicative of teens' sexual behaviors. Teen-focused health care providers should consider screening for sexting behaviors to provide age-specific education about the potential consequences of sexting and as a mechanism for discussing sexual behaviors.

Arch Pediatr Adolesc Med. 2012;166(9):828-833.

Published online July 2, 2012.

doi:10.1001/archpediatrics.2012.835

SEXTING (A COMBINATION OF the words sex and texting), the practice of electronically sending sexually explicit images or messages from one person to another, has received an abundance of attention in the popular press.¹⁻⁴ Much of this attention has been limited to (1) legal cases in which teens who create, send, receive, store, and/or disseminate nude pictures of themselves or another teen face criminal charges including child pornography,^{2,5-10} and (2) cases in which teens are harassed

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and bullied as a result of the nude picture being distributed beyond the intended audience.^{2,11,12} Although media reports often cite various examples of sexting leading to bullying, and even suicide,¹¹ we understand very little about the public health importance of sexting.

Considering the media attention and potential public health implications, it is surprising that research on this topic has been slow to develop. Data on teen sexting, in-

cluding prevalence rates ranging from 1% to 31%, are primarily based on online polls or media-generated studies.^{3,13-16} For example, a frequently cited online survey conducted by the National Campaign to Prevent Teen and Unplanned Pregnancy and Cosmogirl.com¹⁵ found that 20% of teens between the ages of 13 and 19 years have sexted a nude or semi-nude picture of themselves to another teen. Conversely, a study by the Pew Research Center found that only 4% of 12- to 17-year-old adolescents have sent a sext, but that 15% reported receiving one.¹⁷ While these nonpeer reviewed studies have brought needed attention to sexting, they suffer from methodological limitations including biased samples and unknown or extremely low response rates. In one of the few peer-reviewed studies to consider teen sexting, Dowdell and colleagues¹⁸ reported that 15% of their high-school sample had been sent a sext, and a third reported knowing someone who had been involved in sexting.

A recent national study of 10- to 17-year-old adolescents found a surprisingly low rate of teen sexting behaviors.¹⁹ In fact, when sexting was defined as sharing of naked

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images, researchers found that only 1.3% of youth appeared in or created a sext and only 5.9% received a sext. While this study addressed several limitations of previous work, the random-digit dialing approach (relying mostly on households with landlines) likely resulted in an underestimate of actual sexting behaviors. Research has shown that households with landlines tend to be less ethnically diverse, have higher socioeconomic status, and be more conservative compared with households relying solely on cell phone service.²⁰ Indeed, youth in the Mitchell et al¹⁹ study were 73% white, 78% lived in a 2-parent household, and 30% lived in households with an annual income of \$100 000 or greater. This sampling bias may explain the low prevalence of sexting relative to other studies and online polls.

With scant and equivocal empirical data, pediatricians, policy makers, schools, and parents are handicapped by insufficient information about the nature and importance of teen sexting. In addition to the aforementioned legal ramifications and potential for bullying, sexting may be a risk factor for or an indicator of risky sexual behaviors. Given the lack of previous studies, it is unclear how this new behavior fits within the domain of teen dating and sexual behaviors. Thus, the purpose of this study is 2-fold. First, we identify the prevalence and describe the nature of sexting (as sender and receiver) among a large ethnically diverse school-based sample of adolescents. Second, we examine the association between sexting and sexual behaviors. While the novelty of this topic prevents us from making specific empirically guided hypotheses, we anticipate that sexting behaviors will differ by sex, be an extension of teens' lives, and will co-occur with their intimate (dating) and sexual (intercourse and risky sex) behaviors.

METHODS

SAMPLE AND STUDY DESIGN

This study was approved by the institutional review board of the University of Texas Medical Branch. Current data are from time 2 of Dating it Safe, an ongoing longitudinal study of teen dating violence and other high-risk adolescent behaviors. Participants at time 1 (Spring 2010) included 1042 students recruited from 7 public high schools in 4 Houston-area school districts. A total of 964 participants (93%) were retained for time 2. Study recruitment occurred during school hours in courses with mandated attendance, and both parental permission and student assent were obtained. Assessments at each point occurred during school hours, and students received a \$10 gift card for participating. Participants no longer at their original school were surveyed at an alternate time and location.

For the current study, only time 2 data were analyzed because the sexting items did not appear in the time 1 survey. Only participants who answered at least 1 sexting item were included in the analysis (N=948).

MEASURES

Sexting

We assessed lifetime prevalence of sexting with 4 items developed for this study, including (1) "Have you ever sent naked pictures of yourself to another through text or e-mail;" (2) "Have

you ever asked someone to send naked pictures of themselves to you;" (3) "Have you ever been asked to send naked pictures of yourself through text or e-mail;" and (4) "If so, how much were you bothered by this (not at all, a little, a lot, or a great deal)." Questions were developed based on a review of relevant literature^{3,17} and in consultation with adolescent health experts. For some analyses, the question regarding whether teens were bothered by being asked for a sext was collapsed into 2 categories: (1) "not at all" and (2) "a little," "a lot," or "a great deal." Given the increased potential for legal and psychosocial consequences, our definition of sexting was limited to sending naked pictures, as opposed to semi-nude pictures or explicit messages.

Dating and Sexual Behaviors

Participants were asked whether they "have begun dating, going out with someone, or had a boyfriend/girlfriend," and whether they have ever had sexual intercourse. Participants with a history of sexual intercourse were asked about their number of sexual partners in the past year and how often they use alcohol or drugs before sexual intercourse. The last variable was collapsed into 2 categories: (1) "never" and (2) "rarely," "sometimes," or "always."

Demographic variables included sex, age, race/ethnicity, and parents' education. Parents' education was the highest level completed for either parent (high school or less; some college or more).

STATISTICAL ANALYSIS

All analyses were performed using SPSS version 19.0 (SPSS Inc) and SAS version 9.2 (SAS Institute Inc). Relationships between variables were examined using χ^2 , with alpha set at $<.05$.

RESULTS

Participants ranged in age from 14 to 19 years (mean, 15.8 years) and were in either the 10th or 11th grade. Of all the participants, 55.9% were female; and the race/ethnicity makeup of the analyzed sample was 26.6% African American, 30.3% white, and 31.7% Hispanic.

A sizeable minority of teens (n=259; 27.6%) reported having sent a naked picture of themselves through text or e-mail (sext). There was no significant difference between boys (27.8%) and girls (27.5%) in the proportion of teens who reported having sent a sext (**Figure**). However, girls (68.4%) more often reported having been asked to send a sext compared with boys (42.1%; $P < .001$). Boys were significantly ($P < .001$) more likely than girls to report having asked someone for a sext (46% and 21%, respectively). As demonstrated in the Figure, of those who had been asked to send a sext, girls more often reported being bothered by the request. For example, whereas 27% of girls reported being bothered a great deal, only 3% of boys chose this option ($P < .001$).

As shown in **Table 1**, the proportion of teens who had been asked to send a sext and who had actually sent a sext differed by race/ethnicity, with white/non-Hispanic and African American teens more likely than the other racial/ethnic groups to have both been asked and to have sent a sext.

There were also differences across age in the proportion of teens who were asked to send a sext ($P < .002$), who sent a sext ($P = .003$), and who were bothered (at

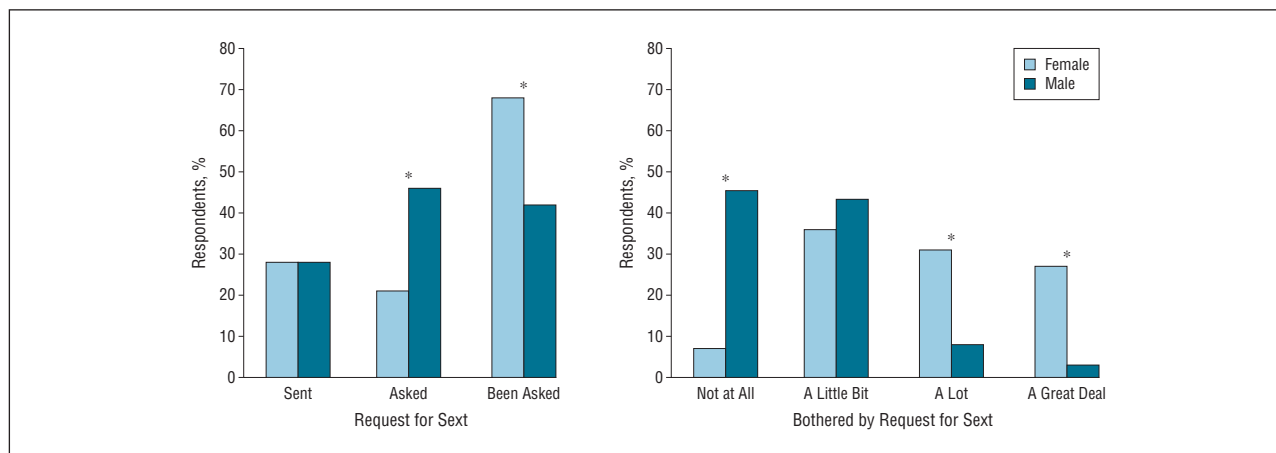


Figure. Differences by sex in sexting behaviors. * indicates $P < .01$.

least a little) by being asked to send a sext ($P = .04$). Older teens were more likely to have sent a sext, and they were less likely to have been bothered by being asked to send a sext. The proportion of teens who reported having been asked to send a sext appeared to peak at 16 and 17 years of age (61.5% and 60.4%, respectively), then declined in those aged 18 years and older (53.3%).

Parental education level was significantly associated only with teens' reports of having asked for a sext; adolescents with parents who had a high school education or less were more likely to have asked for a sext ($P = .004$).

Of the current sample, 93% of girls and 90% of boys have started dating, with 51.1% of girls and 54.6% of boys reporting a history of sexual intercourse. Of those reporting a history of sexual intercourse, boys (52%) were slightly more likely than girls (43%) to report having sex with more than 1 partner in the previous year ($P = .05$). With respect to using substances before sex, no differences emerged between boys and girls (37% and 32%, respectively).

Among girls, there was a significant association between all sexting behaviors and all dating, sex, and risky sex behaviors (**Table 2**). The prevalence of having started dating, having had sex, having multiple sex partners, and using alcohol or drugs before sex were all higher among those who have sent, received, or asked for a sext than among those who had not engaged in those sexting behaviors. For example, among girls who had not sent a sext, 42.0% reported having sex, whereas among those who had sent a sext, 77.4% reported having sex ($P < .001$). In addition, nearly all of the girls who were not at all bothered by having been asked to send a sext also reported that they have had sex (95.7%), whereas a smaller percentage of those who were bothered to some degree reported that they have had sex (44.9-71.4%; $P < .001$).

For boys, having sent a sext and having asked for a sext were each associated with dating and having had sex (**Table 3**). For example, 81.8% of boys who sent a sext reported that they have had sex before, whereas only 45.4% of boys who had never sent a sext reported that they have had sex ($P < .001$). However, there was no significant association between having sent or received a sext and having multiple sex partners or using alcohol or drugs before sex. There were significant associations between having been asked to send a sext and all dating and sexual

behaviors. For instance, of those who reported that someone had asked them to send a sext, 76.2% have had sex, whereas of those who reported not having been asked to sext, only 38.2% have had sex before ($P < .001$).

COMMENT

Findings from our study suggest that sexting behaviors are prevalent among adolescents. While some differences were identified, sexting occurred across sex, age, and race/ethnicity. Specifically, more than 1 in 4 adolescents have sent a nude picture of themselves through electronic means, about half have been asked to send a nude picture, and about a third have asked for a nude picture to be sent to them. Boys were more likely to ask and girls more likely to have been asked for a sext. These rates are at the higher end of estimates generated from available online research and opinion polls¹³⁻¹⁵ and substantially higher than recently published data suggesting that only a little more than 1% of teens had sexted naked pictures.¹⁹ The relatively older sample of adolescents in our study may explain some of the higher rates of sexting. In addition, findings from the current study are based on a more representative sample than those used in previous research, suggesting a more accurate representation of US adolescents' sexting behaviors.

Our findings also make it clear that the commonness of a behavior does not condone its occurrence. On the contrary, we found that teens are generally bothered by being asked to send a naked picture. In fact, nearly all girls were bothered by having been asked. Even among boys, more than half were bothered at least a little by having been asked. Given these results, future research should define more closely what is meant by being bothered (eg, annoyed vs embarrassed).

For both boys and girls, teens who engaged in sexting behaviors were more likely to have begun dating and to have had sex than those who did not sext. Although our survey did not ask for the identity of the sender/receiver of the sext messages, these results suggest that sexting may occur within the context of dating. This assertion is consistent with a recent focus group conducted by the Pew Research Center,¹⁷ in which teens re-

Table 1. Sexting Behaviors by Race/Ethnicity, Age, and Parental Education Level

Demographics	No. (%)			
	Sent a Sext	Asked for a Sext	Been Asked to Sext	Bothered by Being Asked
Race/ethnicity				
Hispanic	63 (21.5)	86 (29.4)	151 (49.8)	125 (83.3)
White/Non-Hispanic	99 (34.5)	97 (33.7)	177 (61.0)	136 (76.8)
African American	68 (27.1)	80 (31.9)	160 (65.0)	131 (82.4)
Asian	6 (18.8)	5 (15.6)	8 (24.2)	5 (62.5)
Mixed/other	23 (31.1)	27 (36.5)	44 (57.9)	39 (88.6)
P value	.007	.21	<.001	.19
Age, y				
≤15	44 (19.9)	59 (26.7)	99 (44.4)	86 (86.9)
16	132 (27.9)	146 (30.8)	294 (61.5)	242 (82.9)
17	69 (32.6)	78 (36.8)	131 (60.4)	96 (73.3)
≥18	14 (45.2)	12 (38.7)	16 (53.3)	12 (75.0)
P value	.003	.11	.002	.04
Parental education				
≤High school	86 (30.0)	110 (38.2)	161 (54.8)	123 (76.9)
Some college or more	156 (27.5)	162 (28.6)	333 (58.8)	273 (82.2)
P value	.45	.004	.25	.16

Table 2. Association Between Dating, Risky Sexual Behaviors, and Sexting Behaviors Among Girls

Risky Sex Behavior	No. (%)			
	Ever Dated	Ever Had Sex	>1 Sex Partner in Last Year	AOD and Sex
Sent a sext				
Yes	145 (100.0)	113 (77.4)	63 (55.8)	45 (39.8)
No	334 (89.8)	162 (42.0)	56 (34.6)	43 (26.5)
P value	<.001	<.001	<.005	<.02
Asked for a sext				
Yes	107 (100.0)	87 (80.6)	49 (56.3)	36 (41.4)
No	372 (90.7)	188 (44.3)	70 (37.2)	52 (27.7)
P value	.002	.001	.003	.02
Been asked to sext				
Yes	354 (98.3)	232 (63.6)	114 (49.1)	84 (36.2)
No	126 (79.8)	40 (23.7)	3 (7.5)	4 (10.0)
P value	<.001	<.001	<.001	<.008
Bothered by being asked				
Not at all	24 (100.0)	22 (95.7)	11 (50.0)	6 (27.3)
A little	130 (100.0)	86 (65.2)	46 (53.5)	37 (43.0)
A lot	109 (98.2)	80 (71.4)	41 (51.3)	28 (35.0)
A great deal	91 (95.8)	44 (44.9)	16 (36.4)	13 (29.6)
P value	.08	<.001	.30	.34

Abbreviation: AOD, alcohol or drugs (taken before having sex in the past year).

ported that sexting often occurs between intimate partners or where at least 1 member participating in the sext hopes to be in a relationship. Perhaps most telling is the finding that adolescents who have engaged in a variety of sexting behaviors were overwhelmingly more likely to have had sex than their peers who have not experienced sexting. Because of the cross-sectional nature of our data, we were unable to determine the temporal relationship between sexting and sexual behavior. However, it is possible that sexting may act as an initial sexual approach or as a way of introducing sex into the relationship. It could also be that sending a sexually explicit image invites sexual advances from an intimate partner or other peers.²¹ Conversely, it may be that once an individual has sex, they are more open to expressing themselves sexu-

ally or that the level of flirtation escalates to include nudity. Regardless of the reason for the association, current findings posit that sexting may be a fairly reliable indicator of sexual behaviors.

Moreover, teen girls who engaged in sexting behaviors also had a higher prevalence of risky sex behaviors, including multiple partners and using drugs or alcohol before sex. Thus, among girls, the use of sexting behaviors appears to coincide with much higher engagement in risky sex behaviors. The same is not true for boys, for whom only having been asked for a sext was related to risky sex behaviors. It is possible that sexting, like actual sexual behaviors, is perceived more permissively²² and positively²³ for boys, and thus not considered a risky behavior and therefore less likely to be associated with

Table 3. Association Between Dating, Risky Sexual Behaviors, and Sexting Behaviors Among Boys

Risky Sex Behavior	No. (%)			
	Ever Dated	Ever Had Sex	>1 Sex Partner in Last Year	AOD and Sex
Sent a sext				
Yes	110 (100.0)	90 (81.8)	46 (51.7)	33 (37.5)
No	239 (86.0)	132 (45.4)	70 (53.4)	48 (36.9)
<i>P</i> value	<.001	<.001	.80	.93
Asked for a sext				
Yes	181 (98.9)	138 (75.0)	73 (53.3)	56 (41.2)
No	169 (82.0)	84 (38.5)	44 (53.0)	25 (30.5)
<i>P</i> value	<.001	<.001	.97	.11
Been asked to sext				
Yes	167 (98.8)	131 (76.2)	74 (56.9)	58 (44.6)
No	188 (82.5)	91 (38.2)	38 (42.2)	24 (27.3)
<i>P</i> value	<.001	<.001	.03	<.01
Bothered by being asked				
Not at all	77 (100.0)	63 (81.8)	33 (53.2)	25 (39.7)
A little	70 (97.2)	54 (74.0)	32 (59.3)	27 (50.0)
A lot	12 (100.0)	9 (64.3)	6 (66.7)	3 (33.3)
A great deal	6 (100.0)	5 (83.3)	3 (60.0)	2 (50.0)
<i>P</i> value	.39	.40	.87	.65

Abbreviation: AOD, alcohol or drugs (taken before having sex in the past year).

other risky behaviors.²⁴ On the other hand, girls may risk being stigmatized for their sexting behaviors (eg, being identified as a “slut”).²³ If true, it would be expected to correlate with other risky behaviors. Additional research, including qualitative studies, is needed to investigate these sex differences.

CLINICAL IMPLICATIONS

Given its prevalence and link to sexual behavior, pediatricians and other tween-focused and teen-focused health care providers may consider screening for sexting behaviors. Asking about sexting could provide insight into whether a teen is likely engaging in other sexual behaviors (for boys and girls) or risky sexual behaviors (for girls). Also, questions about sexting may be easier for teens to answer honestly than questions about sex and risky sex behaviors. However, this should be evaluated in future research. Regardless, talking to teen patients about sexting provides an opportunity to discuss sexual behavior and safe sex. Indeed, these findings reinforce calls by the American Academy of Pediatrics to discuss teen sexting with patients and patients’ parents.²⁵

POLICY IMPLICATIONS

The ubiquity of sexting supports recent efforts to soften the penalties for this behavior.^{10,17,25} Under most existing laws, if our findings were extrapolated nationally, several million teens could be prosecuted for child pornography.¹⁰ Sexting may be more aptly conceptualized as a new type of sexual behavior in which teens may (or may not) engage. In an adolescent period characterized by identity development and formation, sexting should not be considered equivalent to childhood sexual assault, molestation, and date rape. Doing so not only unjustly punishes youthful indiscretions, but minimizes the severity and seriousness of true sexual assault against minors. At the same time, any ef-

forts to soften penalties for sexting should be done cautiously so as not to introduce legal loopholes for other cases involving sexual assault.²⁶ Furthermore, while juvenile-to-juvenile sexting may come to be understood as part of adolescents’ repertoire of sexual behaviors, this understanding should not be applied to sexting between teens and adults or when sexting is used to bully others.

STUDY LIMITATIONS

We do not know from our study whether adolescents’ sexual experiences and engagement in risky sexual behaviors preceded or followed sexting behaviors. Longitudinal studies that explicitly account for the time sequence are needed. In addition, questions on sexting were developed for this study and were not vetted by teens, potentially limiting the validity of our findings. We also did not inquire about the identity of whom teens sexted, who asked for a sext, and under what conditions sexting occurred. Future research, including qualitative studies, should include contextual questions. In addition, findings regarding 18-year-old individuals should be interpreted with caution owing to the relatively small number of these participants in our sample. Finally, although the sample represents a diverse cross-section of students from several high schools/districts, it is possible that regional differences influenced prevalence estimates. Despite these limitations, to our knowledge, this study is among the first to examine the prevalence and nature of sexting in a racially and ethnically diverse school-based sample and to demonstrate a link between sexting and sexual behavior.

CONCLUSIONS

While some differences were noted with respect to sex, age, and race/ethnicity, it is clear that teen sexting is prevalent among adolescents. More than a quarter of teens in the current sample reported sending a naked picture of them-

selves to another teen, and more than half have been asked to send one. Perhaps most telling is the finding that teens who have participated in sexting were substantially more likely to report a history of sexual intercourse (for boys and girls) and risky sexual behaviors (for girls). The use of cell phones and text messaging has increased rapidly during the past 5 years, and the age of cell phone ownership has become steadily younger.^{16,27} Therefore, it is essential that pediatricians, adolescent medicine specialists, and other health care providers become familiar with, routinely ask about, and know how to respond to teen sexting.

Accepted for Publication: April 12, 2012.

Published Online: July 2, 2012. doi:10.1001/archpediatrics.2012.835. Corrected on July 5, 2012.

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Author Contributions: Dr J. R. Temple had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. *Study concept and design:* J. R. Temple, van den Berg, Le, McElhany, and B. W. Temple. *Acquisition of data:* J. R. Temple, Le, and McElhany. *Analysis and interpretation of data:* J. R. Temple, Paul, van den Berg, Le, and McElhany. *Drafting of the manuscript for important intellectual content:* J. R. Temple, Paul, van den Berg, Le, McElhany, and B. W. Temple. *Statistical analysis:* J. R. Temple, Paul, and van den Berg. *Obtained funding:* J. R. Temple. *Administrative, technical, and material support:* J. R. Temple, Le, and McElhany. *Study supervision:* J. R. Temple and B. W. Temple.

Financial Disclosure: None reported.

Funding/Support: Dr J. R. Temple's work is supported by award K23HD059916 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development. This study was also made possible with funding to Dr J. R. Temple by the Hogg Foundation for Mental Health (JRG-082) and the John Sealy Memorial Endowment Fund for Biomedical Research. Dr Paul's work is supported by National Research Service Award T32HD055163, an institutional training grant, from the Eunice Kennedy Shriver National Institute of Child Health and Human Development. Dr van den Berg's work is supported by award K23HD06326102 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development. **Disclaimer:** The content is solely the responsibility of the authors and does not necessarily represent the official views of the Eunice Kennedy Shriver National Institute of Child Health and Human Development or the National Institutes of Health.

Additional Contributions: This work would not have been possible without the permission and assistance of the schools and school districts.

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