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Wi-Fi Turns Rowdy Bus Into Rolling Study Hall

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VAIL, Ariz. — Students endure hundreds of hours on yellow buses each year getting to and from school in this desert exurb of Tucson, and stir-crazy teenagers break the monotony by teasing, texting, flirting, shouting, climbing (over seats) and sometimes punching (seats or seatmates).

But on this chilly morning, as bus No. 92 rolls down a mountain highway just before dawn, high school students are quiet, typing on laptops.

Morning routines have been like this since the fall, when school officials mounted a mobile Internet router to bus No. 92's sheet-metal frame, enabling students to surf the Web. The students call it the Internet Bus, and what began as a high-tech experiment has had an old-fashioned — and unexpected — result. Wi-Fi access has transformed what was often a boisterous bus ride into a rolling study hall, and behavioral problems have virtually disappeared.

“It’s made a big difference,” said J. J. Johnson, the bus’s driver. “Boys aren’t hitting each other, girls are busy, and there’s not so much jumping around.”

On this morning, John O’Connell, a junior at [Empire High School](#) here, is pecking feverishly at his MacBook, touching up an essay on World War I for his American history class. Across the aisle, 16-year-old Jennifer Renner e-mails her friend Patrick to meet her at the bus park in half an hour. Kyle Letarte, a sophomore, peers at his screen, awaiting acknowledgment from a teacher that he has just turned in his biology homework, electronically.

“Got it, thanks,” comes the reply from Michael Frank, Kyle’s teacher.

Internet buses may soon be hauling children to school in many other districts, particularly those with long bus routes. The company marketing the router, [Autonet Mobile](#), says it has sold them to schools or districts in Florida, Missouri and Washington, D.C.

Karen Cator, director of [education technology](#) at the federal Department of Education, said the buses were part of a wider effort to use technology to extend learning beyond classroom walls and the six-hour school day. The Vail District, with 18 schools and 10,000 students, is sprawled across 425 square miles of subdivision, mesquite and mountain ridges southeast of Tucson. Many parents work at local [Raytheon](#) and [I.B.M.](#) plants. Others are ranchers.

The district has taken technological initiatives before. In 2005, it inaugurated Empire High as a digital school, with the district issuing students laptops instead of textbooks, and more than 100 built-in wireless access points offering a powerful Internet signal in every classroom and even on the football field.

“We have enough wireless to make your fillings hurt,” says Matt Federoff, the district’s chief information officer.

District officials got the idea for wiring the bus during occasional drives on school business to Phoenix, two hours each way, when they realized that if they doubled

up, one person could drive and the other could work using a laptop and a wireless card. They wondered if Internet access on a school bus would increase students' academic productivity, too.

But the idea for the Internet Bus really took shape in the fall, when Mr. Federoff was at home, baby on his lap, and saw an advertisement in an electronics catalog offering a "Wi-Fi hotspot in your car."

"I thought, what if you could put that in a bus?" he said. The router cost \$200, and came with a \$60 a month Internet service contract. An early test came in December, when bus No. 92 carried the boys' varsity soccer team to a tournament nearly four hours away. The ride began at 4 a.m., so many players and coaches slept en route. But between games, with the bus in a parking lot adjacent to the soccer field, players and coaches sat with laptops, fielding e-mail messages and doing homework — basically turning the bus into a Wi-Fi cafe, said Cody Bingham, the bus driver for the trip.

Mariah Nunes, a sophomore who is a team manager, said she researched an essay on bicycle safety.

"I used my laptop for pretty much the whole ride," Mariah said. "It was quieter than it normally would have been. Everybody was pumped about the games, and there were some rowdy boys. But the coach said, 'Let's all be quiet and do some homework.' And it wasn't too different from study hall."

Ms. Bingham recalled, "That was the quietest ride I've ever had with high schoolers."

Since then, district officials have been delighted to see the amount of homework getting done, morning and evening, as Mr. Johnson picks up and drops off students along the highway that climbs from Vail through the Santa Rita

mountains to Sonoita. The drive takes about 70 minutes each way.

One recent afternoon, with a wintry rain pelting the bus, 18-year-old Jeanette Roelke used her laptop to finish and send in an assignment on tax policy for her American government class.

Students were not just doing homework, of course. Even though Dylan Powell, a freshman, had vowed to devote the ride home to an algebra assignment, he instead called up a digital keyboard using GarageBand, a music-making program, and spent the next half-hour with earphones on, pretending to be a rock star, banging on the keys of his laptop and swaying back and forth in his seat.

Two seats to the rear, Jerod Reyes, another freshman, was playing SAS, an online shooting game in which players fire a machine gun at attacking zombies.

Vail's superintendent, Calvin Baker, says he knew from the start that some students would play computer games.

"That's a whole lot better than having them bugging each other," Mr. Baker said.

A ride through mountains on a drizzly afternoon can be unpredictable, even on the Internet Bus. Through the windows on the left, inky clouds suddenly parted above a ridge, revealing an arc of incandescent color.

"Dude, there's a rainbow!" shouted Morghan Sonderer, a ninth grader.

A dozen students looked up from their laptops and cellphones, abandoning technology to stare in wonder at the eastern sky.

"It's following us!" Morghan exclaimed.

"We're being stalked by a rainbow!" Jerod said.