

Distance Learning and Wi-Fi

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Good afternoon Chairmen Mendelson, my name is Bradley Chambers. I currently serve as the Director of IT for Brainerd Baptist School in Chattanooga, TN. I've engineered K-12 Wi-Fi networks since 2009, and I write for 9to5Mac about Apple, Education, and the Enterprise. 9to5Mac is one of the most popular Apple websites in the world.

The 2020 Pandemic forced many businesses to change, but education was tasked with something much deeper than just remotely working. K-12 schools had to not only teach from home, but also had to prepare students to learn from home.

Wi-Fi is not enough

For distance learning (and remote work), simply having high speed internet into the home/apartment is half of the solution. Wi-Fi must be throughout the home wherever the people are. In many situations, the Wi-Fi router is on one end of the home, but a student is on a video call on the other end where the Wi-Fi doesn't reach as well. Video connections are also very unforgiving when it comes to spotty connections. Where loading a webpage or sending an email can tolerate unpredictable connections, video does not. Device selection is also part of it as well. If a device only works on 2.4 Ghz, then it'll be more prone to interference than one that supports 5 Ghz.

One thing to consider as well for apartments is if there are 15 or so Wi-Fi networks within range of each other, RF interference becomes a concern. Providing free Wi-Fi is like providing roads. Just because the roads are there doesn't mean there isn't going to be traffic.

Do all homes need the same coverage?

If there is a 25 Mbps connection and 3-4 people are using video technology, its possible to saturate the connection under the best of circumstances. My earlier comment above about RF interference in multi-dwelling units applies here as well.

What are the best practices to ensure distance learning success in terms of Wi-Fi

This is a really hard problem to solve. District IT Departments aren't setup to support connects at all of the homes of their students and teachers. It's hard enough keeping the district networks up and running and adding EVERY SINGLE student's network is nearly impossible. You'd need a Comcast call center type operation to properly support it.

Money is not the issue

Spending money on Wi-Fi and internet speeds won't fix the problem just like spending money at under performing schools doesn't fix the problem. When it comes to distance learning, making sure the home as fast internet, there is robust Wi-Fi in all areas of the home (or at least the primary learning location), and limited

RF interference will all be required. The problem is each home and multi-dwelling unit is different.

When there are issues, most parents don't feel skilled enough to troubleshoot the problem, and even if the problem isn't on the network side of the home, it could be on the vendor's end (Microsoft, Zoom, etc). If school's are going to be required to implement and manage the networks of all of their students, there is going to need to be a massive rethought of district technology strategy in terms of support, hiring, equipment, etc.

No school was prepared to do distance learning, and even with months notice, it's nearly impossible to support thousands of people's home networks without an operation the size of Comcast, Verizon, Charter, etc.