

TeachME Professional Development

Technology Infrastructure for Digital Learning

Introduction: The Need for Speed

1. According to Education Superhighway, K-12 bandwidth demand has been growing at a rate of 50 percent each year, and to meet students' digital needs, schools must have a robust technical infrastructure that extends high-speed wireless connectivity to every classroom and instructional space.

- A. True
 - B. False
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2. In addition to technology infrastructure, high-quality professional learning and instructional methodology is needed so teachers enter classrooms ready to use technological tools to support learning that:

- A. Promotes college and career readiness
 - B. Is project- and inquiry-based
 - C. Is blended and personalized
 - D. Is common-core aligned and information-centered
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The National Educational Technology Plan

3. The National Education Technology Plan (NETP) articulates a vision of equity, active use, and collaborative leadership to make everywhere, all the-time learning possible, and such a plan must be guided by clear goals and effective planning.

- A. True
 - B. False
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Getting Started-Piloting Technology Roll-outs

4. Factors that most frequently lead to technology roll-out failures include inability to make adequate use of its potential, poor goals and objectives for its use, and insufficient technical instruction for students.

- A. True

B. False

5. During digital learning transitions, after assembling a high-level team to develop the technology vision, the next step should include each of the following EXCEPT:

- A. Assess the capacity of current network infrastructure and devices**
 - B. Gauge current levels of usage**
 - C. Estimate the demands needed in the future**
 - D. Evaluate specific student-driven technology needs**
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Evaluating Educational Technology Tools

6. Which of the following is an accurate statement about The Rapid Cycle Evaluation (RCE) Coach that conducts short cycle evaluations of educational technologies?

- A. The goal of the RCE Coach is to increase evidence-based decision making related to the procurement and implementation of educational technologies**
 - B. It focuses on learning technologies with the goal of improving academic performance in reading, writing, math, and science**
 - C. It includes a three-step process for educators to create a data design**
 - D. All of the above**
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How Many and What Type of Devices are Needed?

7. Although the refresh cycle for devices such as desktops, laptops, and tablets currently owned and in use by schools will vary, it is generally between 5-7 years.

- A. True**
 - B. False**
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Getting High-Speed Internet to Schools

8. Since most schools do not own their own fiber network, the most frequently used options for acquiring fiber Internet access are leasing or obtaining a right of use contract.

- A. True**
 - B. False**
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Approaches for Connecting Schools-Path 1: Where the Path Makes Sense

9. While schools or districts who have access to a Research and Education Network (REN) may consider it as the most cost-effective method of Internet connection, disadvantages may include high upfront REN connection costs, difficult long term cost projections, and:

- A. Hardware services cannot be centralized**
 - B. RENs require active engagement of their users to be most effective**
 - C. It is difficult to store heavily used content internally**
 - D. None of the above**
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Path 4: Mobile Devices or Hotspots Connect Directly to Commercial ISP

10. School or districts may purchase or lease mobile hotspots or cellular broadband-enabled devices from an Internet Service Provider (ISP), and this path is typically used to provide students with equitable connectivity outside school and as a supplement, not a replacement, for in-school connectivity.

- A. True**
 - B. False**
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Major Cost Drivers

11. Which of the following is NOT one of the likely factors that will have the greatest impact on total cost of network ownership?

- A. The number of devices and types of digital learning resources a network must support, and the level and type of security needed**
 - B. The capacity and age of existing physical infrastructure, including conduits, cables, and wireless access points**
 - C. The distance and geographic difficulty of connecting school buildings to the Internet**
 - D. Device and equipment maintenance and upgrades/network management and monitoring**
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Getting High-Speed Internet Throughout Schools-The Speed of the Entire Network

12. To get high-speed Internet connectivity to classrooms, every segment of the network must be able to accommodate high speeds, and no matter how fast the Internet connection, user experience will be poor if the network inside the school is outdated.

- A. True
 - B. False
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Configuring and Managing A Network

13. In most situations, enterprise-grade equipment is needed to support modern digital learning environments since small office or home office-grade equipment will not offer the features needed to support mobile devices at scale.

- A. True
 - B. False
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Cybersecurity

14. When installing, operating and maintaining, or upgrading a network, it is critical to assess the risks and prepare for wide range of cyber threats, whether they are caused by virtual attacks, human error, or:

- A. Service interruptions
 - B. Non-encrypted access
 - C. Physical intrusion
 - D. Identity breeches
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Common Cybersecurity Threats

15. Phishing refers to a cyber attack that prevents users from accessing their data through encryption or that threatens to release private or sensitive data publicly.

- A. True
 - B. False
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Six-Step Planning Process for EOP Development

16. In emergency operations plan (EOP) development, cybersecurity-related actions associated with Step 2-“Understand the Situation” include identifying cyber threats and hazards, assessing the cyber risk, and:

- A. Identifying the cyber vulnerabilities
- B. Determining who the cybersecurity experts are

- C. Developing a variety of measures to prevent cyber threats
 - D. Highlighting action steps to address cybersecurity
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Getting Devices to Students and Teachers

17. The educational benefits of increased connectivity can only be maximized when teachers and students have 1:1 access to mobile devices, as shared devices make it difficult for students to engage in “everywhere, all-the-time” learning and limit access to personalized learning opportunities.

- A. True
 - B. False
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Considerations For Device Selection

18. The primary driving factors in device selection should be the awareness and appreciation of the importance of technology, and the ability to apply tools, materials, and technical concepts safely and efficiently.

- A. True
 - B. False
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Bring Your Own Device (BYOD)

19. Although BYOD policies can provide students with greater choice and control of the technology they use, they may also create several challenges, including each of the following EXCEPT:

- A. Economic disparity is created because the ability to access digital learning materials is disproportionately distributed to students whose families can afford the devices
 - B. Instructional burden for teachers who have to manage learning activities on multiple platforms and devices
 - C. The comfort of using one’s own device adds to distractibility and contributes to students frequently being off-task
 - D. Assessment security could be hindered since student-owned devices may not have the functionality necessary to support a secure testing environment
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Know Students’ Home Internet Access

20. When students are allowed to take devices home or have homework assignments that require internet access, schools should consider:

- A. Some families may not be able to afford home Internet access, or they may live in a rural area where home connectivity is not available**
 - B. Students may have home Internet access, but still have difficulty completing homework because they share a single computer with multiple family members**
 - C. Schools and districts need creative solutions such as devices and/or web applications that allow students to work offline, relationships with local businesses, libraries, YMCAs, or community centers to provide students with Internet access after school, or ability to provide wireless hotspots for students in need**
 - D. All of the above**
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Responsible Use, Privacy, and Other Considerations-Encouraging Responsible Use

21. Before allowing students Internet access via a school device or network, most schools ask parents and students to sign an Acceptable Use Policy (AUP) which generally addresses ethical technology use, standards for student behavior and interaction, and websites or platforms that should not be used while on campus or using a school-provided device.

- A. True**
 - B. False**
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Preventing Device Damage or Loss

22. To help prevent and reduce rates of device damage and loss, recommendations include teaching students responsible practices, allowing students to customize their devices so they will take more responsibility for them, requiring password protection, and:

- A. Meeting with parents before distribution to promote parent/student collaboration in device use and care**
 - B. Using mobile device management software to locate a missing device and remotely render it inoperable**
 - C. Installing programs that disallow unsanctioned content, as this will serve as a reminder that the device is the school's property and will likely deter theft**
 - D. Providing a low-cost insurance policy for students and families**
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